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FRED'K A. CASTLE, M.D., - - EDITOR.
CHARLES RICE, PH.D., - ASSOCIATE EDITOR.

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EDITORIAL.

Horatio C. Wood, M.D.

HORATIO C. WOOD was born in Philadelphia, Jan. 13th, 1841. His father Horatio C. Wood was one of a family of two sisters and five brothers—of which the late venerable emeritus professor and well-known author, George B. Wood, was also one—representing the fifth generation descended from Richard Wood, who emigrated from Bristol, England, to Philadelphia in 1682–3, probably with William Penn. He was accompanied by his son James Wood, who was born in Bristol, England, Dec. 15th, 1671, from whom, and his wife Jane Wood, born in London, Sept. 24th, 1675, the generation of Woods above referred to is directly descended. The lineage of the family is not traceable further back than this Richard Wood who came to Philadelphia from England in 1682–3. Early in the eighteenth century the second Richard Wood, eldest son of James Wood, settled in the lower part of New Jersey (Salem County), and the family resided there for two generations. But the entire generation to which Dr. H. C. Wood's father belonged removed to Philadelphia, where all, except the late Dr. George B. Wood, became prominent and successful in merchantile pursuits. The family have continued members of the Religious Society of Friends until the present generation, of which most remain Friends, while others have attached themselves to other religious denominations. Among the latter is the subject of our sketch.

Prosessor Wood's mother was Elizabeth H., daughter of John Bacon, of Philadelphia, also a Friend. He is one of ten children, seven sons and three daughters.

Dr. Wood's literary education was received at Friends' schools, among the more notable of which was the famous West Town Boarding School near West Chester, Pa., which may be called the Acworth of Pennsylvania. He early developed a fondness for natural history, and before, as well as while a student of medicine, and after graduating in medicine, he was an earnest worker among the collections in the Academy of Natural Sciences of Philadelphia, and before taking his degree in medicine he published in the Proceedings of the Academy, for 1860, "Contributions to the Carboniferous Flora of the United States" and "Catalogue of Carboniferous Plants in the Museum of the Academy, with Descriptions of Three New Species;" in the Proceedings for 1861, "Descriptions of New Species (19) of Scolopendra," "Description of a New Species of the Genus Thelyphonus," and "Monograph of the Chilopoda of North America," with a catalogue of all the specimens in the Museum of the Smithsonian Institution, 4to, 52 pp., with figures in the text. He studied medicine in the University of Pennsylvania, whence he was graduated in March, 1862. He was immediately appointed one of the resident physicians or internes in the Philadelphia Hospital where he served one year, and whence he passed to the same position in the Pennsylvania Hospital, serving a similar period. After spending some time in the military hospitals in and about Philadelphia, he began practice in that city in 1865, devoting himself to therapeutics and materia medica, but still continuing his natural history studies and publishing numerous papers on subjects connected with natural history, and especially cell-botany. In 1866, he was appointed by the trustees of the University of Pennsylvania professor of botany in the Auxiliary Faculty of Medicine, which had been established and endowed by his uncle Dr. George B. Wood. About this time, too, he began to turn his attention to nervous diseases, and on the organization of the new University Hospital in March, 1874, he was appointed clinical lecturer on nervous diseases. In April, 1875, this position was made a clinical professorship by the board of trustees of the University. In 1870, he was appointed one of the visiting phy-

sicians to the Philadelphia Hospital. In July, 1871, when NEW REMEDIES was first established as a quarterly of 92 pages, 8vo, Dr. Wood became its editor and continued as such until January, 1873. In 1876, on the death of the late Prof. Joseph Carson, he was chosen professor of materia medica and therapeutics in the medical department of the University, soon after which he resigned the chair of botany in the Auxiliary Faculty of Medicine.

Dr. Wood is an incessant worker. In addition to performing the duties of his various public positions, of private and consulting practice, he has published at various dates, since the year 1860, the following clinical lectures, papers, and monographs in addition to those already mentioned, many of them involving months, and even years, of the most laborious research :

Botanical. Contribution to our knowledge of the Flora of the Coal Period in the United States. 4to, 10 pages, 2 plates. *Transactions of the American Philosophical Society*, 1866.—Monograph of the Fresh-Water Algæ of North America. 4to, 270 pp., 19 colored, 2 uncolored plates from 360 original microscopic drawings. *Smithsonian Contributions to Knowledge*, 1872.

Entomological. Description of New Species (9) of North American Pedipalpi. *Proceedings of the Academy of Natural Sciences*, 1863.—Description of New Species (10) of North American Polydesmidæ. *Proceedings of the Academy of Natural Sciences*, 1864.—Descriptions of New Species (14) of North American Julidæ. *Proceedings of the Academy of Natural Sciences*, 1864.—Description of New Genera (2) and Species (2) of North American Myriapoda. *Proceedings of the Academy of Natural Sciences*, 1864.—Description of a New Genus and New Species (2) of Polyzoniidæ. *Proceedings of the Academy of Natural Sciences*, 1865.—Descriptions of New Species (4) of Texan Myriapoda. *Proceedings of the Academy of Natural Sciences*, 1867.—Notes on California Myriapoda, with Descriptions of Six New Species. *Proceedings of the Academy of Natural Sciences*, 1867.—Monograph of the Pedipalpi of North America. 4to, 20 pp., 1 plate. *Journal of the Academy of Natural Sciences*, 1862.—Monograph of the Myriapoda of North America. 4to, 112 pp., with 61 figures in the text, and 3 plates. *Transactions of the American Philosophical Society*, 1865.—Monograph of the Phalangidæ of North America. *Proceedings of the Essex Institute*, 1868.

Experimental Physiology and Therapeutics. An Examination into the Truth of the Asserted Production of General Diseases by Organized Entities. 20 pp. *American Journal of the Medical Sciences*, lvi., 333.—A Contribution to our Knowledge of the Physiological Action of the Alkaloids Viridia, Veratroidia, and Veratria of Commerce, and of the Resin of Veratrum Viride. 17 pp., 35 experiments. *American Journal of the Medical Sciences*, lix., 36.—On the Influence of Section of the Cervical Pneumogastrics upon the Action of Emetics and Cathartics. 24 pp., 51 experiments. *American Journal of the Medical Sciences*, lx., 75.—Acetic Ether as an Anæsthetic. 1 p. *American Journal of the Medical Sciences*, lx., 137.—Contribution to our Knowledge of the Physiological Action of Atropia. Part I., 4 pp., 10 experiments. *American Journal of the Medical Sciences*, lxi., 128. Part II., 9 experiments, 10 pp., *Ibid.*, lxv., 333. — Experimental Researches on the Physiological Action of Nitrite of Amyl. *Warren Prize Essay.* 24 pp., 49 experiments. *American Journal of the Medical Sciences*, lxii., 39.—A Contribution to our Knowledge of the Vaso-Motor Action of Ergot. 4to, 2 pp., 8 experiments. *Philadelphia Medical Times*, May, 1874.—On the Oxytocic Action of Quinine. 2 experiments. *Philadelphia Medical Times*, iv.—An Investigation into the Action of Veratrum Viride. Pamphlet, 50 pp., 48 experiments. Reprinted from *Philadelphia Medical Times.*—A Study of the Nature and Mechanism of Fever. 45 pp., 13 experiments. *Toner Lecture. Smithsonian Miscellaneous Collections*, 1875.—Thermic Fever, or Sunstroke. *Boylston Prize Essay.* 12mo, 128 pp., 29 experiments. J. B. Lippincott & Co., 1872.—American Hemp. *Prize Essay. Proceedings of the American Philosophical Society.*—A Study of Convulsants. 4to, 4 pp.. 16 experiments. *Philadelphia Medical Times*, vol. iii.—Preliminary Note on a New Medicinal Plant and its Alkaloid. 1 p. *Philadelphia Medical Times*, vol. vii.—Note on the Alkaloid Sophoria. 2 pp. *American Journal of Pharmacy*, 1878. —Bromide of Ethyl, its Physiological Action and Value as an Anæsthetic. *Philadelphia Medicol Times*, vol. x.—In conjunction with Dr. E. T. Reichert, On the Physiological Action of Essential Oils. 1 p., 12 experiments. *Journal of Physiology*, 1880.—In conjunction with Dr. H. Formad, Researches on the Effects of Inoculating the Lower Animals with Diphtheritic Exudation. 4to, 6 pp., 62 experiments. *National Board of Health Bulletin*, 1880.—Fever, a Study in Morbid and Normal Physiology. 4to, 250 pp., 121 experiments. *Contributions to Knowledge, Smithsonian Institute*, 1880.

Clinical Medicine. On Sunstroke. 6 pp. *American Journal of the Medical Sciences*, xlvi.—Case of Leucinosis or Yellow Atrophy of the Liver. 13 pp. *American Journal of the Medical Sciences*, liii., 418.—On Acute Dropsy, Scarlatinal, and Idiopathic. 11 pp. *American Journal of the Medical Sciences*, lxii., 75.—Therapeutic Value of Nitrite of Amyl. 4 pp. *American Journal of the Medical Sciences*, lxii., 359.—On the Relations of Leucocythæmia and Pseudoleukæmia. 12 pp. *American Journal of the Medical Sciences*, lxii., 373. Reports of Medical Cases. Various Papers. *Pennsylvania Hospital Reports*, 1868. *Philadelphia Medical Times*, vol. i. to vol. xi.—Contributions to our Knowledge of Nervous Syphilis. 9 pp. *American Journal of the Medical Sciences*, Oct., 1880.

Clinical lectures and fugitive papers on various subjects, chiefly connected with diseases of the nervous system, therapeutics, etc. *Philadelphia Medical Times. Philadelphia Medical and Surgical Reporter. New York Medical Record. Seguin's Series of American Clinical Lectures, etc., etc.*

But the work by which he is probably best known is his "Treatise on Materia Medica and Therapeutics," of which the first edition was published in 1875, the third in 1879. Ten thousand copies of it have been sold. The feature which has given it its greatest value may be said to be its "physiological basis," it being the the first work in which the physiological action of drugs was brought prominently forward as the ground-work of a treatise on therapeutics. Dr. Wood is also sole editor of the latter half of the fourteenth edition of the United States Dispensatory. In 1879, he published a small volume on "Brain Work and Overwork," and in 1880, in conjunction with Dr. Fothergill, of London, a volume entitled "Food for Invalids." Since 1873 he has been sole editor of the *Philadelphia Medical Times.*

Dr. Wood is characterized by his intense energy; capacity for original investigation; for his power of concentration and rapidity of composition, which he can carry on amid distractions under which few could work at all; for his frankness and open hostility to what he believes requires correction. Although somewhat impulsive, he is warm-hearted and gener-

ous, and highly esteemed by all who know and understand him. He was married in 1866 to Miss Eliza Longacre, of Philadelphia, and has four children.

The portrait of Professor Wood, accompanying this sketch of his works, is from a photograph by Gutekunst, of Philadelphia.

Medical Pads and Electrical Brushes.

WHEN the fifth-column editor of the *New York Daily Times* expresses the views of that periodical on a medical topic, his writings are usually worthy of respectful attention. We reprint below one of his recent arguments in favor of some of the popular remedies of the day, and think that those of our readers who remember a somewhat similar effort on the part of the editor of "*Scribner's*" a few weeks since, will admit that Dr. Holland will need to try again if he wishes to save his medal as a champion expert in scientific medicine.

"Since the original liver pad inventor made a fortune by decorating the fences of our country with his half-length portrait representing him as dressed almost exclusively in a liver pad, the attention of inventors of remedies for all sorts of diseases has been turned to the exterior of their fellow-beings. Pads have to a great extent superseded 'bitters' and 'compound extracts' and 'favorite remedies,' and the inexhaustible supply of eminent though anonymous ministers of the Gospel who were formerly constantly testifying that they had been cured of incurable diseases after taking seven bottles of this or that medicine are now devoting most of their spare time to writing letters declaring the miracles wrought in the condition of their various organs by wearing appropriate pads. There is not an organ in the possession of any human being which is without its special pad, and persons who fancy themselves afflicted with a complication of diseases frequently cover themselves so thoroughly with remedial pads that they could with entire decency appear in public without any of the garments usually held to be necessary.

"It would be difficult to induce people afflicted with headache or baldness to wear pads on their heads, and therefore the field of the pad inventor begins at the human neck. There is, however, an external remedy which is said to be a sure cure for headache. This is the electric brush. To all appearance it is like any ordinary brush, but in its bristles is stored up an inexhaustible supply of electricity. How this electricity is put into the bristles is not known. Perhaps they are soaked for twenty-four hours in a pailful of electricity, or perhaps electricity is forced into them by heavy pressure. At any rate, the electricity is in them, and it is practically inexhaustible.

"As everybody knows, electricity is a specific for headache, no matter from what cause the headache may arise. Doctors have hitherto administered electricity by the spoonful, or in the shape of pills, but its unpleasant taste has rendered it unpopular with delicate patients. The electric hair-brush supersedes electrical pills and draughts. If you have a headache all you have to do is to induce some one to brush your hair with an electric brush. You will neither taste nor smell the electricity, but it will soak through the scalp and skull, and on reaching the brain will instantly cause the headache to cease. This is surely better than swallowing nauseous doses of liquid or solid electricity, which delicate stomachs often are unable to retain. There is abundant testimony to prove that the electric hair-brush is as beneficial and infallible in its effects as are the liver, stomach, lung, kidney, spine, shin, and back-teeth pads that are in such universal use, and the sneers of the doctors who call themselves 'regular physicians' cannot injure it in public estimation."

Corrections.

PAGE 242, column 2, line 23 from bottom, *for* sources *read* series. In next line, *for* U. S. P. and Br. Proof Spts. in average beverages. Spts., wines, and malt liquors, *read* in U. S. Ph. and Br. Ph. proof spirits. In average beverages: spirits, wines, and malt liquors. Page 243, column 1, line 26 from top, *for* of arsenical *read* by arsenical. Same page, column 2, line 20 from top, *after Qualitative Chemistry, add* December examination. Same column, *over* line 11 from bottom *add* January examination. Page 244, column 1, *over* line 11 from top *add* March examination. Same page, column 2, line 16 from top, *for* cc. of HCl, *read* cc. of hydrochloric acid. Same column, line 18 from top, *for* pint of HNO_3 (wine measure), *read* pint (wine measure) of nitric acid.

Sainte-Claire Deville, of France, who recently died, was a creole, born in 1818 on the island of St. Thomas. Early in his scientific career his attention was devoted chiefly to organic chemistry, in later years, however, the chemistry of inorganic substances was his chief study. He was the first to produce aluminum in any considerable quantity; his process consisting in heating a double salt of chloride of aluminum and sodium with metallic sodium; fluor spar or cryolite being added as a flux. The demand for metallic sodium for this process led to such improvement in its manufacture that its price fell in ten years from 2,000 francs to 15 francs per kilogram. A similar method was afterwards applied to magnesia, and the working of platinum also received his attention.

Mr. Charles A. Smylie, of the firm of Young & Smylie, manufacturers of liicorice, in Brooklyn, N. Y., lately died of paralysis.

Pharmacy in Prussia.—It is now proposed to allow the Communes in Prussia to grant the license for pharmacies, instead of the government as hitherto. Such enormous prices have been paid for concessions that this heavy tax must be paid by some one. The new proprietor of a drug store must try and have a good interest on his capital, and a bad quality of drugs sometimes seems to be the easiest method of doing so. In order to have all the legitimate trade centered in their hands, the druggists are to have a meeting at Cassel to consider a resolution of the Berlin doctors to have the selling of patent medicines reserved exclusively for apothecaries, and then only articles which are sold at fair rates, and where the formulæ are known.—*Oil and Drug News.*

Medical Guide.—The Marine Hospital Service will soon issue a "Hand-book to the Ship's Medicine Chest," similar to the book issued by the London Board of Trade entitled "Ship Captain's Medical Guide." The book will be furnished to all registered vessels.

A Leipzic Medical Journal has been fined one hundred marks and costs at the suit of seventy-five homœopathic doctors for publishing a lecture delivered before a Berlin medical society, in which homœopathy was denounced as quackery and swindling.

The Society of Chemical Industry recently founded in London has held an inaugural session lasting two days, during which papers were read on "Noxious Gases Legislation," "Lager Beer," "Mechanical Furnaces," "Gaseous Fuel" and "Patent Laws." The society already has 300 members.

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

On Oil of Anda-Assu.

Johannesia princeps Vell. (*Anda Gomesii* Juss., *Anda brasiliensis* Radd., *Andicus pentaphyllus* Vell.) is a large tree of Brazil, belonging to the natural family Euphorbiaceæ, growing along the coast on sandy soil, but also much cultivated in the interior. It has numerous spreading branches, digitate leaves, with five entire oval-lanceolate leaflets, each with a petiole, and all attached to a common petiole having from two to five glands at the point of insertion of the leaves. The flowers are pale-yellow, in irregular terminal panicles, the male flowers on stalks, the female sessile. The fruit

Johannesia princeps Vell.

is a nut over three inches in diameter, almost heart-shaped, or indistinctly four-cornered. The kernel is oval, somewhat compressed, with two prominent and two rather indistinct corners. Martius states that the shape of the nuts, as they appear in the market, is so different that probably several species are the sources of them. The seeds, of which there are two, seldom three, are about the size of a small plum, somewhat kidney-shaped and covered with a firm, dark-brown epidermis. They have an agreeable almond-like, or hazel-nut-like flavor, and contain a fatty oil.

These seeds are known in Brazil under the following names: *andd-açú; andd-guaçú; indaiaçú; indayuçú; purga de gentio* (in Rio de Janeiro, and S. Paulo); *coco de purga; purgo dos Paulistas; fruta de arára* (in Minas). They have been used from ancient times as an effective purgative, and have particularly been found useful, even by European practitioners in Brazil, in affections of the liver, jaundice, and dropsy. They have also been found valuable as auxiliary remedies in menstrual disturbances and in scrofulous affections.

The ordinary dose for a male adult is two seeds, which may be increased to three, or even more with caution. They are best administered in form of emulsion, or combined with starch or sugar, and mild aromatics, whereby their effect is rendered less harsh, and the tendency to vomiting, which sometimes occurs, is diminished. The oil of the seeds is also used as a purgative, but it is much less effective than the seeds themselves; an ordinary dose is about 40 drops. It is also used for burning in lamps, and has the peculiar property of being a very rapidly drying oil, for which reason it is much sought after by painters and artists. The shell of the fruit is astringent, and is sometimes used for stupefying fish. After being roasted it is held to be a sovereign remedy in diarrhœa brought on by cold and exposure.

By expressing 50 seeds of Johannesia,* which weigh ab. 350 grams, about 48 grams of a fine, clear, slightly yellowish, odorless oil are obtained. Its taste is at first somewhat nauseating, afterwards saccharine. It is soluble in ether, oil of turpentine, and benzin, solidifies at 8° C., and has a spec. grav. of 0.9176 at 18° C.

An analysis of the fruits or seeds of Johannesia has revealed the presence of 0.4 per cent of an active principle which the discoverer, Mello Olliveira, proposes to call *johannesine*. It was obtained in the following manner: 100 grams of the seeds, in coarse powder, are treated with water slightly acidulated with hydrochloric acid, at a temperature of 80° C., during 3 hours. The mixture is set aside for 24 hours and filtered, when a clear, dark-red liquid is obtained. This is treated with ammonia, which produces an abundant precipitate. The latter is washed, first with water, then with hot alcohol, and after being dried, represents a light rose-colored powder, very light and completely soluble in acidulated water. The coloring matter accompanying the principle may be removed either by repeated crystallization of one of its salts, or else by filtering the aqueous solution through animal charcoal. The pure alkaloid is but little soluble in water, alcohol, and is insoluble in chloroform, benzin, ether, and disulphide of carbon.† Dr. Couty found the sulphate of

* This portion of the above article is abstracted from *El Laboratorio* (Barcelona), 1881, 156.

† This refusal to dissolve in all these liquids is somewhat curious. Could it possibly have been, partly, at least, of inorganic origin? We have, at present, no access to the original memoir, and cannot examine the statements of the author himself.—Ed. N. R.

johannesine, contrary to the opinions of other Brazilian physicians, to be totally inert.

Dr. Jorves,* of Rio de Janeiro, obtained very satisfactory results with the oil, in 1860, having used it in a case of cirrhosis with dropsy, in the dose of two teaspoonfuls in a cup of coffee. Dr. Fazenda also obtained very good results. Not long ago, Dr. Joao Manoel de Castro studied the effects of the oil very closely, and arrived at the following results:

1. Oil of anda-assu may be administered in doses of 10 grams at a time without producing vomiting.

2. The purgative effect appears 2 or 3 hours after taking the oil.

3. There are usually 3 or 4 evacuations after one dose.

4. No intestinal irritation follows the use of the oil.

5. It may be employed in all cases where castor oil would be used.

6. It has the following advantages over castor oil: it produces the same degree of effect with a smaller dose, and it does not have the repulsive odor of castor oil.

Other authorities also regard it as a great advantage that it is much more fluid, and therefore does not adhere so much to the palate. Besides, the seed of anda-assu is very abundant in Brazil, and it furnishes a great deal of oil, being about ten times as large as a castor oil bean.

If the oil is employed in larger doses than 10 grams, it acts as a drastic cathartic. A griping principle seems to reside in the embryo and the skin of the seed; both of these should, therefore, be removed when making an emulsion of the seeds.

[ORIGINAL COMMUNICATION.]

HOW TO FORTIFY A WINE.

BY HENRY B. PARSONS.

IT sometimes happens that the pharmacist finds it necessary to fortify the wine he has in stock, either to prevent its deterioration or to fit it for use where a more alcoholic liquid is needed. Supposing that he knows, as he should, the percentage of real alcohol in the wine, and also in the alcohol or brandy which he intends to add, it still is somewhat perplexing to determine at once the exact amount of each liquid to be used in order to produce any given amount of the required mixture of the proper intermediate strength.

The problem becomes: *To form any required number of parts of liquid* (*n*) *of intermediate strength from two liquids of different percentage content of the same substance* (alcohol).

Suppose it is required to fortify a light Catawba wine, containing 8.26 per cent by weight of alcohol, with grape brandy containing 43.7 per cent by weight of alcohol, so as to produce 100 parts of mixture containing 16 per cent by weight of alcohol.

The simplest way will be to construct an algebraic formula which shall have one unknown quantity (x).

Let .01 a equal the percentage of alcohol in the weaker liquid (*wine*).
" .01 b " the percentage of alcohol in the stronger liquid (brandy).
" x " amount of weaker liquid (wine) to be taken.
" n " the required amount of mixture.
" $n-x$ " amount of stronger liquid (brandy) to be taken.
" m " amount of alcohol in n parts of finished mixture.

Then the amount of wine to be used (x) multiplied by the percentage of alcohol it contains (.01 a) will equal the amount of alcohol in the wine to be taken (equal .01 ax); in like manner the amount of brandy ($n-x$) multiplied by the percentage of alcohol in the brandy (.01 b) will equal the amount of alcohol in the required amount of brandy (equal .01 bn—01 bx). Now the quantity of alcohol in the required amounts each of wine and brandy must equal the total alcohol in the mixture (m). We then have:

$$(A)\ .01\ ax + .01\ bn - .01\ bx = m.$$

Substituting the proper figures we have:

$.0826\ x + 43.7 - .437\ x = 16$; or, transposing

$-.3544\ x = -27.7$

$x = 78.16$ parts of wine,

$n - x$ = amount of brandy to be added; or,

$100 - 78.16 = 21.84$ parts of brandy.

The proof that this is correct is simple, thus:

78.16 pts. wine × .0826 = 6.456 pts. of alcohol.
21.84 " brandy × .4370 = 9.544 " "

100.00 " mixture contain 16.000 " "

as was required.

If, instead of using brandy, we add alcohol of 91 per cent the equation becomes (by substituting in the general equation A):

$.0826\ x + 91. - .9100\ x = 16.$

$-.8274\ x = -75.$

$x = 90.64$ parts of wine.

$n - x = 100 - 96.64 = 9.36$ " alcohol.

The proof that this is correct is the same as before, thus:

90.64 pts. wine × .0826 = 7.49 pts. alcohol.
9.36 " alcohol × .9100 = 8.51 " "

100.00 " mixture contain 16.00 " "

A glance at the construction of the general equation (A) will serve to show that it may also be used for the purpose of forming definite mixtures of any intermediate strength of any other

* *Monit. de la Pharm.*, 1881, 26.

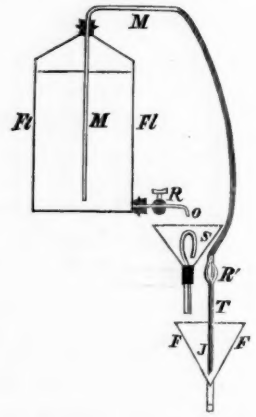
solid or liquid substances, provided each of the constituents contains a known amount of a common ingredient.

WASHINGTON, D. C., Aug., 1881.

Self-acting Wash-Apparatus for Filters.

THE apparatus here illustrated differs from most other similar ones by the fact that the refilling of the funnel from the reservoir does not take place continuously, but intermittently.

The reservoir *Fl* contains the wash-fluid, which flows at first through the open faucet *R* into the upper funnel. From the latter it cannot flow into the lower one until it has risen to the top of the small siphon *S*, when nearly the whole of the contents will be siphoned into the funnel below, which contains the filter and precipitate to be washed. As soon as the lower funnel *F* becomes filled, the end *J* of the tube *M*, *R'*, *T*, becomes immersed, and air can no

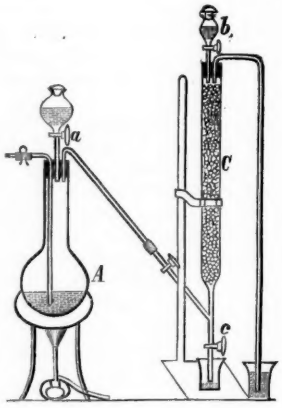


longer enter the reservoir, in consequence of which the flow of liquid will stop until the end of *J* is again disengaged. The liquid will then resume its flow until the upper funnel has emptied itself into the lower one. The tube *T* contains a bulbous expansion at *R'*, which is intended to arrest any solid particles of the precipitate carried upwards by suction, when air re-enters the tube.—*Zeit. f. anal. Chem.*, 1880, 473, and *Pharm. Centralh.*, No. 4.

Estimation of Phosphorus in Phosphides.

C. MUELLER recommends the liberation of phosphoretted hydrogen from the phosphide or phosphuret, in some neutral atmosphere, and to cause the gas to traverse a column of glass pebbles kept moist with fuming nitric acid, whereby it is converted into phosphoric acid. He employed the process particularly for the estimation of the phosphorus retained by the scoria of blast-furnaces (for iron), but it is also serviceable in other cases, as, for instance, for the determination of sulphur in sulphides, and for this very purpose the apparatus about to be described was originally devised by A. Ledebur.

The substance in which the phosphorus is to be determined—which must be in the state of phosphide—is finely powdered and about 10 gms. of the powder put in the flask *A* which has a capacity of about one-half to three-fourths liter. The stoppered funnel *a* contains concentrated hydrochloric acid. The flask is connected, on one side with an apparatus for generating pure carbonic acid gas, and on the other side with a cylinder *C* filled with glass pebbles. After the air in the whole apparatus has been expelled by a continued current of carbonic acid gas and the pinch-cock of the tube conveying the latter has been closed, an amount of fuming nitric acid sufficient to moisten all the glass pebbles is allowed to flow from the funnel *b*. The stop-cock of the funnel *a* is then open-

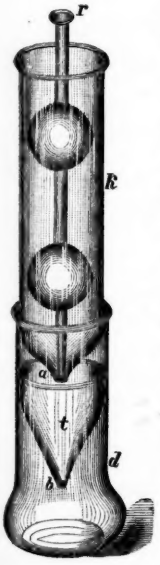


ed and a few cubic centimeters of the acid allowed to flow into the flask, whereby an immediate effervescence and escape of gas is produced, which passes over to the cylinder and is there completely oxidized into phosphoric acid. This being no longer volatile it remains in the the cylinder. [In the case of sulphides, sulphuric acid is produced.] As soon as no more gas is evolved by the further addition of acid, the flask *A* is heated gradually to boiling, and finally a fresh current of carbonic acid gas is made to traverse the apparatus, whereby any remaining unoxidized phosphoretted [or sulphuretted] hydrogen is carried into the cylinder. Finally the stop-cock of the cylinder is opened, and its liquid contents collected in the beaker below. The glass-pebbles are washed with distilled water and the washings likewise allowed to flow into the beaker, which now contains the whole of the phosphorus [or sulphur] as phosphoric [or sulphuric] acid, which may be assayed in the usual manner.—*Dingler's Polyt. Journ.*, 240, 384.

Thorn's Analytical Extraction Apparatus.

DR. EDWARD THORN, chemist, of Hamburg, has procured a patent (Germ. Pat. 14,744) for a new extraction apparatus, designed for analytical purposes, which bids fair to displace nearly all those previously designed, by its compactness and simplicity.

The apparatus consists of three parts: the almost cylindrical flask *d*, the funnel *t*, and the open condensing tube *a r* which is inclosed within a cylindrical tube *k*, designed to hold cold water. The tube *a r* has two bulbs blown upon it, to facilitate the condensation of the vapors. When using the apparatus, the weight of the perfectly dry flask *d* is first carefully taken, after which about 20 cc. of the proper menstruum (alcohol, ether, chloroform, etc.) are introduced. A small filter is placed in the funnel *t*, and upon the filter is brought a weighed sample of the substance to be analyzed. The funnel is then placed in the flask *d*, the latter clamped into a retort stand, or otherwise suitably supported, and the condensing cylinder *k* inserted, which is charged with water, or if necessary, a freezing mixture. When working with very volatile liquids, the tube *r* is lengthened by another smaller tube. On heating the bottom of the flask with a water or glycerin or oil bath, the menstruum is volatilized, condensed in the bulb-tube, and flows upon the substance in the funnel. By repeated contact with, or removal of, the source of heat, this process is maintained until the extraction is completed, which may be ascertained by removing the funnel, and allowing a drop to flow upon a watch-glass.



When the process is finished, the menstruum is driven as much as possible into the bulb-tube, the upper orifice of which, at *r*, is then closed with the finger, when it may be removed with most of the liquid. [To make sure that no excess of menstruum remains, the flask should be again warmed until no more vapors of the liquid are evolved.]

The quantity of extractive may be ascertained either from the increase of weight of the flask *d*, or from the decrease of weight of the funnel *t* with contents, dried in either case at 110° C.

The original apparatus has a height of 8 inches; the flask *d* is 1⅝ inches wide, below, and 1¼ inches above; the funnel is 1¾ inches long, the tube *a r* 5⅓ inch. long and about ¼ inch wide. Price, 5 marks. A larger size is likewise made.—*Pharm. Centralh.*, No. 23.

Pipette for Strongly Odorous or Poisonous Liquids.

MANY liquids, like chloroform, amylic alcohol, benzine, are only with difficulty drawn up into pipettes by suction with the mouth; hence various contrivances have been in use to produce suction mechanically, such as rubber-bulbs, aspirators, etc. C. Mann, in *Pharm. Zeitsch. f. Russl.* (No. 3), points out that a very simple pipette for such purposes has been proposed already in 1864 by Gerard and Chancel. It consists of a glass tube, drawn out to a point at one end, the other end passing through a cork fitting snugly into a glass cylinder, which is tightly corked at the other end. The upper part of the glass tube is slightly greased so that it may be more readily pushed up or down through the cork. If a liquid is to be drawn in the tube, the upper end of the latter is first pushed into the glass cylinder, until the end touches the upper cork; then the orifice of the pipette is inserted in the liquid, and the glass cylinder pushed upward by the thumb of one hand (see cut), when the partial vacuum produced will cause the liquid to ascend the tube. Even single drops may be removed from the surface of other liquids in this manner.—*Pharm. Centralh.*, No. 21.

New Reagent for Sulphur and for Nitrobenzol.

R. BRUNNER communicates the following: Mix the substance to be tested for sulphur with some strong solution of potassa, then add a few drops each of commercial nitrobenzol and alcohol, and allow the mixture to stand at ordinary temperature, occasionally agitating. After some time there will appear, if sulphur or alkaline sulphides were present, a reddish color, due to the reduction of the nitrobenzol. By this method not only the presence of free sulphur, but also that contained in albumen, bread, wool, etc., may be demonstrated directly.

By inverting the process, and adding pure sulphur instead of nitrobenzol, the presence of the latter body [f. i. in oil of bitter almonds] may be detected.—*Zeitsch. f. anal. Chem.*, 1881, 390.

Pharmaceutical Apparatus.

At the recent exhibition held during the meeting of the Pharmaceutical Conference in England were several novelties, of which we reproduce illustrations from the *Chemist and Druggist*. Figure 1 is a simple pill-coater, which appears to have been made by "spinning" metal, and is a neat apparatus. Figure 2 represents a model of a stirring apparatus. It is intended to be worked by steam, and was originally used for making extract of cinchona. Figure 3 shows Maw's Glass Apparatus for Collecting Precipitates. It consists of a cylindrical precipitating-glass, into which a little cup with lifting-rod slides easily. The cup being placed at the bottom of the cylinder, the fluid with the sediment is poured in and the latter is allowed to settle. The small perforated disc of glass is then dropped into the cylinder, and retains the precipitate in the cup while it is being lifted.

Fig. 1.

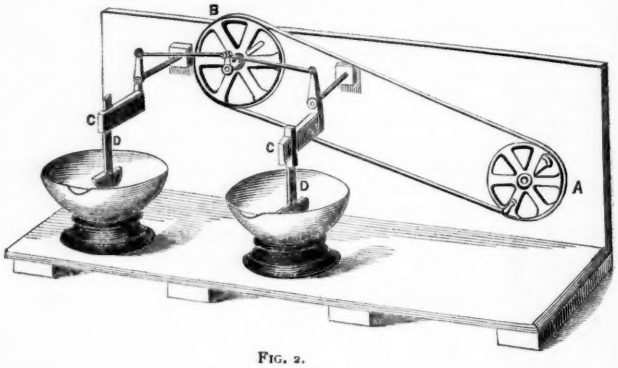


Fig. 2.

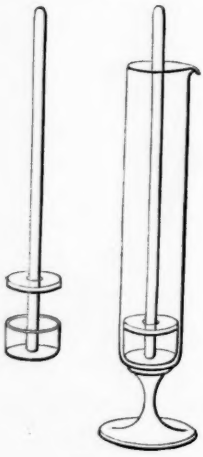


Fig. 3.

[Original Communication.]

A PHARMACIST OF THE PERIOD.*

His name is Bolus; at a tender age and at a compensation of a dollar or two per week he is admitted to the Galenical sanctum of the corner drug store. He has no time to waste on theory, but in stern practice he investigates the mechanical action of the symbolic pestle and mortar upon the crude elements of the ordinary pharmaceutical preparations; experiments with the labor-saving action of certain chemical reagents upon the metallic surfaces of the showcases; learns the chemistry of the sparkling soda water with its sophisticated cream-syrups, the antiquity of the foaming "mead," and the botanic composition of the healthful beverage from the birch, hitherto known to him only as an external application. In due time he takes his stand behind the mystic prescription case and begins to decipher the hieroglyphic characters and erratic abbreviations of the modern prescription. He is a stranger to chemical nomenclature and unversed in the first elements of botanical classification, yet his pills are round and firm, his powders uniform, his emulsions homogeneous and permanent, and his preparations generally evince some practical knowledge of his calling.

It is true he is required to be on duty eighteen hours out of twenty-four; the remaining six (with occasional interruptions on the part of the night-bell) being spent on a luxurious couch which is compactly stored under the prescription counter; but this is fortunate, for having industriously labored five or six years at his calling he now receives the magnificent salary of six or eight dollars weekly, and much leisure might tempt him to extravagance.

At length by rigid economy accumulating a small amount of the "needful," he selects a location (usually a corner) on which to hoist his gilded mortar and display his colored bottles. He, in turn, dispenses "the best soda in the city," "compounds prescriptions accurately at all hours of the day or night," and furnishes "a clear Havana cigar for five cents."

He is the most accommodating individual extant. Having learned that "civility costs nothing," this constitutes his principal stock in trade. He keeps constantly on hand an ample supply of the several denominations of postage stamps in which he realizes so large a margin that, in case a customer has "no small change," he will cheerfully mark it down (on the ice) and will politely attach the stamp and deposit the letter on the box on the opposite corner.

He is a regular subscriber to the City Direc-

* A paper read by R. K. Smither at the July meeting of the Erie County Pharmaceutical Association.

tory exclusively for the use of his patrons, and is invariably ready to search for such addresses as may be applied for. An inexhaustible stock of expensive chromo-lithographs supplies the youthful demand for "picture cards." He is highly gratified to be frequently notified by his patrons that they are morally certain his profits average several hundred per cent., and considers himself slighted if not treated at least once daily to a recapitulation of some of the usual anecdotes illustrative of the popular exaggerated idea of his margins. This cheers him up and makes him suspect that the attenuated condition of his bank account may, after all, be due to some mathematical error. His telephone is at the disposal of the public, and he will consider it a privilege to be allowed to suspend the manipulation of some important pharmaceutical preparation to call Mr. Jones at his office and inquire what time he will be home to dinner; if Mrs. Jones prefers not to wait, the answer will be cheerfully sent a couple of blocks to her residence.

As a waiting room for the street cars Bolus' store is pre-eminent. Tickets are retailed singly and on long time, and observation rigidly made as to "what time the last car passed," also calculations as to when the next may be expected; the exact time is also furnished, together with any desired information regarding the running of trains or boats. Our pharmacist is the factor of a celebrated *cough mixture*, and not to be behind on the popular terminology he christens it "*coughaline*."

It is recommended as an "infallible remedy" for all diseases of the throat or lungs, with the possible exception of "the last stages of consumption." With the first package issued he assures the confiding public that it has been employed by eminent physicians for years, and as there are numerous counterfeits abroad, warns them that the genuine "bears the fac-simile of the discoverer, thus, Benjamin Bolus." He advertises it in the following striking and attractive newspaper local, "Cough while you can, for after taking one bottle of Bolus' *Coughaline* you can't. Sold by druggists. Price 25 cents."

To the physicians with whom he comes in contact Bolus is obsequious in the extreme, for although he has a lingering suspicion that the mere possession of an average medical diploma is not necessarily a guarantee of superior ability, intelligence, or integrity, yet it is customary, and consequently politic. He keeps in stock all the placeboic "*elegant preparations*" that are advertised in the current medical journals, and is ever ready to order "by request" a quantity of any new or expensive remedy his medical patrons may wish to try. It is more than likely to prove overestimated and n. g., and nine-tenths of the investment will remain permanent, but this enables our pharmacist to accumulate a varied collection of specimens as a practical illustration of the "progress of pharmacy" in this particular direction.

When requested to prescribe for some minor ailment in a customer Bolus declines to so violate his ethical obligations to their family physician, but, recommending the employment of the latter, tenders the gratuitous use of his telephone for the purpose. He is highly gratified to be subsequently informed that the F. P. on his arrival dispensed the necessary medicine from his pocket case. His medical friends as a special concession tolerate his keeping the ordinary patent medicines with but a moderate amount of "kicking," and though he may not personally advocate their use, he cannot afford to dispense with his share of the trade, for, although, unlike his alchemic ancestors, Bolus never hopes to discover an abundant source of gold, yet he finds a reasonable equivalent in national currency necessary to defray family expenses.

In the foregoing exaggerated picture of the pharmacist of the day it must be admitted there are a few grains of truth. That our profession does not rank in the dignified and elevated position to which it is entitled is undeniable. To begin with, young men of education and ability see very little inducement in the weary hours and meagre compensation which, in the present comminuted state of the business, we are able to offer, and, when employed, the routine drudgery is so excessive that no time is left for study, research, or investigation.

This state of affairs is largely attributable to unlimited and unscrupulous competition, adventurers taking up the business without the least knowledge of it, but who are attracted by the popular fallacy that in it they can realize large fortunes from a small investment.

We are gratified to believe, however, that the public are beginning to awake to the importance of purchasing their pharmaceutical supplies from those who can discriminate between active and inert qualities of drugs; who understand the combining affinities of potent remedies; have sufficient knowledge of toxicology to detect overdoses or dangerous combinations should they occur, and last, but not least, a conscientious sense of moral obligation in furnishing an article, the quality of which cannot be judged by the purchaser.

The pseudo druggist, having none of these *professional* qualifications, seeks to compensate therefor by the purely *tradesman's* tactics of "cutting prices," frequently carrying it to a point below the cost of honest production, and thus, we regret to say, capturing some of the unthinking masses. Our legitimate pharmacist, though poor, is correspondingly honest, and has never learned that quinine can be dispensed from the cinchonidia bottle, and that the expensive standard pharmaceutical preparations can be palmed off on afflicted humanity at two-thirds their pharmacopœial strength.

"Competition is the life of trade," and so far as pharmacy can be regarded as a trade we do not shrink from honorable competition.

But ours is not simply a trade but a profession, and one for which, in justice to the public as well as ourselves, the laws should prescribe a standard of qualification.

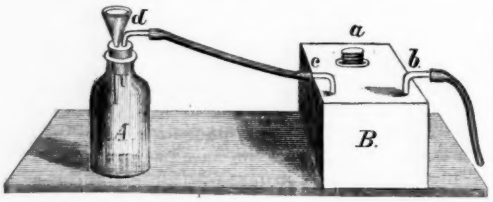
While the fitness of the writer of a prescription is examined into, the ability of the *dispenser*, from whose incompetency it may prove a ticket to that "bourne from whence no traveller returns," is left entirely to the judgment of the purchaser, who must rely to some extent on appearances and trust a good deal to Providence. In our efforts to elevate our profession in this State to the position it enjoys in European countries, and to that already assigned it in several of the States of our Union, it is gratifying to know that the sympathies of the more intelligent portion of the community are with us, and particularly of that class who are best able to judge of the need—the physicians; and if our Pharmacy Bill in the present Legislature is pocketed by a Chairman of Assembly Committee, who, being a notorious manufacturer of nostrums, cannot be expected to favor any elevated standard of pharmacy, our motto must be "Nil desperandum."

BUFFALO, N. Y.

[ORIGINAL COMMUNICATION.]

RAPID FILTERING APPARATUS.

NOTICING many appliances in the NEW REMEDIES for rapid filtering, washing, etc., has induced



me to describe a simple inexpensive apparatus which I have been using for some time, and which just fills the want. It consists of "A," a common wide-mouth half-gallon jar, and "B," a can holding 3, 4, or 5 gallons; a castor-oil can answers the purpose splendidly, and any tinner will fix it to suit for a few cents. The cap and screw "*a*" is for readily filling "B;" "*b*" the exhaust pipe reaches inside of the can, nearly to the bottom, the tin tube "*c*" is soldered on the head of B connecting with the interior. The jar A having a funnel fitting into it through an air-tight stopple, is connected with B by means of the bent glass tube "*d*" and rubber tube. B is now filled with water, and the solution to be filtered is placed in the funnel. "*b*" is now connected with a rubber tube 6, 8, or 10 feet long, and 4 or 5 millimeters in diameter (the longer the tube the more rapid the filtration). The syphon thus formed is started and the apparatus is in full running order.

With this I get the best of results; it is handy, convenient, cheap, and always ready for use.

H. S.

CANTON, OHIO.

Magnesia as a Means of Clarifying and Purifying Liquids.

ANDREAS TSCHIRIKOW has found that liquids which contain minute foreign particles in suspension may be rapidly clarified by mixing them with a solution of sulphate of magnesium and afterwards milk of lime. Naturally, the process is only applicable to such liquids in which the presence of an excess of lime will not be of any harm, or where it will not even remain in solution. For instance, liquors may be thus thoroughly clarified. At the same time waste water may be deprived of most of its organic impurities by mixing it with the two reagents, and hence the process may also be used, to a certain extent, for disinfecting. It is, however, not thoroughly reliable for this purpose, but is nevertheless useful in many cases, particularly where the precipitate produced (consisting chiefly of magnesia and sulphate of calcium) might furnish nourishment to the soil.—*Pharm. Zeitschr. f. Russl.*, No. 22.

Elixirs.

AT the Meeting of the American Pharmaceutical Association, Mr. R. W. Gardner, of New York, read a paper on "Elixirs," which was reproduced in our Journal (1880, p. 309). As we frequently have queries directed to us, regarding some of the formulas there presented, we have decided to reprint a portion of the paper, which has undergone careful revision by the author, to whom we tender our acknowledgments.

Preliminary Remarks.—In preparing elixirs containing alkaloids, the alcoholic flavored vehicle is first made, reserving a portion of the alcohol. The citric acid is then dissolved in sufficient water, the alkaloids are added, stirred until dissolved, and then added, under stirring, to the elixir.

In preparing elixirs of pepsin *in combination with* bismuth, Boudault's pepsin has been found preferable to that prepared by Schefer's process, as the latter contains some chloride of sodium and hydrochloric acid, which decompose the bismuth salt. These bismuth and pepsin elixirs must be made *exactly* neutral. In all elixirs containing alkaloids or their salts, citric acid is to be added in small proportion, but this must be again completely neutralized, upon the completion of the preparation, by ammonia, if any iron or bismuth salts are present at the same time. If the acid is omitted, the alkaloids and their salts will gradually separate, and if the elixir of pyro-

phosphate of iron is left acid, the iron salt is decomposed.

In the elixir of phosphates of iron, quinia, and strychnia, the tribasic *ferric* phosphate, rendered soluble by citrate of ammonium, is used. This is more stable and less prone to be affected by light than the pyrophosphate. Addition of about 10% of glycerin favors the blending of its constitutents. [N.B. To facilitate the correction of formulas previously published, we have retained the former numbers and have indicated alterations by the use of heavy-faced type.—ED. N. R.]

1. *Curaçao Flavor.*

Tinct. curaçoa co	fl. oz.	8
" fresh orange peel	"	16
Orange-flower water	"	12
Syrup	"	70
Alcohol	"	72
Water	"	32

5. *Citro-Ammoniacal Solution of Ferric Phosphate.*

Phosphate of sodium	oz.	7½
Solution of tersulphate of iron	fl. oz.	7
Citric acid	grs.	960
Water of ammonia, U. S. P.	fl. oz.	5½ or q. s.

Dissolve the phosphate of sodium in q. s. water and decompose with the tersulph. iron; wash and drain. Combine the acid and ammonia, using sufficient of the latter to exactly neutralize, and add sufficient to the phosphate of iron to dissolve under the same condition as the officinal pyrophosphate. Evaporate by gentle heat to one pint. This solution contains about 50% of the salt.

9. *Elixir of Blackberry Root.*

Fluid extract of blackberry	fl. oz.	10 ♏ 320
Tincture of orange peel	fl. oz.	2
Oil of orange	♏	15
" cassia	♏	8
" anise	♏	8
" coriander	♏	8
" nutmeg	♏	4
" rose	♏	4
Extract of vanilla	fl. oz.	2
Phosphate of calcium	q. s.	
Syrup	fl. oz.	52
Alcohol	fl. oz.	28
Water	q. s. to make gal.	1

10. *Citro-***Sodic** *Solution of Chloride of Iron.*

Solution of chloride of iron	fl. oz.	48
Citric acid	oz.	54 grs. 197
Carbonate of sodium, cryst	oz.	100 grs. 5
Water	q. s.	

Dissolve the carbonate and acid in 6 pints of water; mix this solution gradually with the iron solution, and add water to make 12 pints.

15. *Elixir of Calisaya and Iron.*

Tincture of lemon peel	fl. oz.	1 ♏ 360
Oil of orange	♏	65
" lemon	♏	30
" cloves	♏	6
" cassia	♏	6
" nutmeg	♏	6
Alcohol	fl. oz.	21
Pyrophosphate of iron	oz.	2 grs. 64
Sulphate of quinia	grs.	130
" " cinchonia	grs.	65
Phosphate of calcium	q. s.	
Syrup	fl. oz.	48
Citric acid	grs.	25
Water of ammonia	q. s.	
Glycerin	fl. oz.	1 ♏ 360
Water	q. s. to make gall.	1

16. *Elixir of Calisaya, Iron, and Bismuth.*

Ammonio-citrate of bismuth	oz.	2 grs. 64
Water, q. s. to dissolve.		
Elixir of calisaya and iron q. s. to make gall.		1

19. *Elixir of Calisaya, Iron and Strychnia.*

Citrate of strychnia	grs.	10⅝
Boiling water	fl. oz.	½
Alcohol	fl. oz.	½
Dissolve, filter, and add elixir of calisaya and iron q. s. to make gall.		1

22. *Elixir of Coca Leaves.*

Fluid extract of coca	fl. oz.	21 ♏ 160
Alcohol	fl. oz.	13
Glycerin	fl. oz.	5
Curaçao flavor	fl. oz.	5
Sherry wine	fl. oz.	8
Sol. of caustic soda (sp. gr. 1.22)	fl. oz.	½
Elixir of orange **comp.** q. s. to gall.		1

The soda is added to increase the activity.

23. *Elixir of Corydalis, Compound.*

Fl. extract of corydalis	fl. oz.	8 grs. 256
" " " stillingia	fl. oz.	8 grs. 256
" " " prickly ash bark	fl. oz.	8 grs. 256
Iodide of potassium	oz.	1 grs. 32
Glycerin	fl. oz.	3
Elixir of orange comp. q. s. to gall.		1

24. *Elixir of Gentian and Chloride of Iron.*

Citro-**sodic** solution of chloride of iron	fl. oz.	5 ♏ 160
Fl. ext. of gentian	fl. oz.	8 ♏ 256
Oil of orange	♏	16
" cassia	♏	8
" anise	♏	8
" coriander	♏	8
" nutmeg	♏	4
Extract of vanilla	fl. oz.	2
Tincture of orange peel	fl. oz.	2
Alcohol	fl. oz.	22
Syrup	fl. oz.	24
Glycerin	fl. oz.	4
Water q. s. to gall.		1

25. *Elixir of Guarana.*

Fl. ext. of guarana	fl. oz.	21 ♏ 160
Carbonate of magnesium	**drs.**	3
Curaçao flavor	fl. oz.	16
Tincture of orange peel	fl. oz.	7
" lemon peel	fl. oz.	1
Extract of vanilla	fl. oz.	2
Alcohol	fl. oz.	7
Syrup	fl. oz.	32
Glycerin	fl. oz.	10
Water q. s. to 1 gall.		

28. *Elixir Laxativum.*

Fl. ext. of rhubarb	fl. oz.	4
" " senna (deodorized)	fl. oz.	2 ♏ 320
" " taraxacum	fl. oz.	4
" " buckthorn bk	fl. oz.	2
" " ginger	fl. dr.	2
Glycerin	fl. oz.	16
Phosphate of **sodium**	oz.	5 gr. 160
Rochelle salt	oz.	4
Bicarbonate of sodium	oz.	2 gr. 160
Tincture of lemon peel	fl. oz.	3½
Syrup	fl. oz.	28½
Alcohol	fl. oz.	19
Tincture of orange peel	fl. oz.	3½
Water q. s. to gall.		1

34. *Wine of Beef, Iron, and Calisaya.*

Sulphate of quinia	gr.	130
" cinchonia	gr.	65
Citric acid	gr.	20
Alcohol	fl. oz.	2
Boiling water	fl. oz.	2
Wine of beef and iron q. s. to	gal.	1

30. *Elixir of Pepsin* (*Wine of Pepsin*).

Solution of saccharated pepsin	fl. oz. 29 ♏ 123
Hydrochloric acid C. P.	♏ 30
Glycerin	fl. oz. 5½
Tincture of orange peel	fl. oz. 3
Phosphate of calcium	q. s.
Orange-flower water	fl. oz. 3
Syrup	fl. oz. 20
Alcohol	fl. oz. 17
Sherry wine	q. s. to gall. 1

31. *Elixir of Pepsin and Bismuth.*

Boudault's pepsin	oz. 5 gr. 160
Water	fl. oz. 16
Alcohol	fl. oz. 3

Mix and filter (*a*).

Tincture of orange peel	fl. oz. 5½
" " lemon peel	fl. oz. 2½
Phosphate calcium	q. s.
Water	fl. oz. 15

Triturate and filter (*b*).

Ammonio-cit. of bismuth	oz. 2 gr. 64
Water	fl. oz. 4

Dissolve and filter (*c*).

Alcohol	fl. oz. 8
Syrup	fl. oz. 24
Water	q. s. to gal. 1

Add *b* to *a*; then add *c*, and finally the other ingredients.

35. *Elixir of Phosphate of Iron, Quinia and Strychnia.*

Citro-ammoniacal phosphate of iron	oz. 2 gr. 64
Sulphate of quinia	oz. 1 gr. 32
Citrate of strychnia	gr. $8\frac{8}{15}$
Tincture of orange peel	fl. oz. 1½
Extract of vanilla	fl. oz. 1½
Citric acid	gr. 20
Phosphate of calcium	q. s.
Oil of orange	♏ 15
" cassia	♏ 8
" anise	♏ 8
" coriander	♏ 8
" nutmeg	♏ 4
Syrup	fl. oz. 38
Glycerin	fl. oz. 12
Alcohol	fl. oz. 28
Water	q. s. to gal. 1

39. *Elixir of Taraxacum, Compound.*

Fl. ext. taraxacum	fl. oz. 3 ♏ 96
" gentian	♏ 384
" licorice	♏ 384
" wild cherry	fl. oz. 6 ♏ 192
Oil of orange	♏ 12
" cassia	♏ 6
" anise	♏ 6
" coriander	♏ 6
" nutmeg	♏ 3
" rose	♏ 3
Tincture of cardamom	dr. 10
Phosphate of calcium	q. s.
Alcohol	fl. oz. 24
Syrup	fl. oz. 31
Water	q. s. to gal. 1

42. *Elixir of Valerianate of Ammonium and Quinia.*

Sulphate of quinia	oz. 2 gr. 64
Alcohol	fl. oz. 8
Citric acid	gr. 75
Boiling water	fl. oz. 3

Dissolve and add to

Valerianate of ammonium	gr. 176
Elixir of valerianate of ammon.	q. s. to gal. 1
Water of ammonia q. s. to exactly neutralize.	

43. *Wine of Beef and Iron.*

Extract of beef	oz. 4½
Pyrophosphate of iron	oz. 2 gr. 64
Boiling water, q. s. to dissolve.	
Curaçao flavor	fl. oz. 4
Tincture of orange peel	fl. oz. 4
Syrup	fl. oz. 26
Alcohol	fl. oz. 21
Sol. of citrate of ammonium	fl. oz. 4
Sherry wine	q. s. to gal. 1

44. *Wine of Calisaya.*

Tincture of orange peel	fl. oz. 2
Oil of orange	♏ 15
" cassia	♏ 8
" anise	♏ 8
" coriander	♏ 8
" nutmeg	♏ 4
" rose	♏ 4
Extract of vanilla	fl. oz. 2
Syrup	fl. oz. 50
Citric acid	gr. 20
Sulphate of quinia	gr. 130
" cinchonia	gr. 65
Phosphate of calcium	q. s.
Alcohol	fl. oz. 14
Sherry wine	fl. oz. 48
Water	q. s. to gal. 1

45. *Bitter Wine of Iron.*

Citrate of iron and quinia **soluble.**	oz. 2 gr. 64
Curaçao flavor	fl. oz. 8
Tincture of orange peel	fl. oz. 8
Phosphate of calcium	q. s.
Syrup	fl. oz. 16
Alcohol	fl. oz. 8
Sherry wine	fl. oz. 64
Water	q. s. to gall. 1

Anæsthetics.

ABSTRACT OF A MONOGRAPH ON THIS SUBJECT BY DR. EDWARD TAUBER.

[Continued from p. 237.]

21. *Bromal Hydrate* (*Germ.:* Bromalhydrat); $CBr_3.CHO.H_2O = C_2HBr_3O.H_2O$.—Bromal or Tribromaldehyde, $CBr_3.CHO = C_2HBr_3O$, is a liquid very much resembling chloral, and prepared in a similar manner, except that bromine vapor is substituted for chlorine. Bromal hydrate melts at 53.5° C. Bromal is split by alkalies into bromoform and formic acid.

Bromal hydrate differs considerably in its effects from chloral hydrate, and cannot replace the latter. It is more poisonous than the latter and affects the cerebellum and spinal marrow in a higher degree than the cerebrum.

22. *Iodal; Tri-iodaldehyde;* $CI_3.CHO = C_2HI_3O$.—Obtained by treating alcohol, acidulated by nitric acid, with iodine.

Has only been experimented with on animals.

23. *Tetrachlorethene; Carbon Dichloride* (*Germ.:* Tetrachloræthylen; [Kohlenstoffchlorid; Zweifach Chlorkohlenstoff]); $CCl_2.CCl_2 = C_2Cl_4$.—Colorless, mobile liquid, of spec. gr. 1.629. Produced by the action of an alcoholic solution of potassium sulphide upon carbon trichloride (C_2Cl_6).*

*C_2Cl_6 (carbon trichloride) + 2KHS (potassium sulphide) = C_2Cl_4 (carbon dichloride) + 2KCl (potassium chloride) + H_2S (hydrosulphuric acid) + S (sulphur).

Experiments have only been made on animals.

24. *Æther anæstheticus; Aran's Ether* (*Germ.:* Aran'scher Aether). Is chiefly composed of tetrachlorethane, $C_2H_2Cl_4$, and pentachlorethane, C_2HCl_5.—Obtained by the action of chlorine upon ethyl chloride. Colorless liquid, of ethereal, aromatic odor, and sweet, burning taste. Insoluble in water and not inflammable. Spec. gr. 1.6. Boils between 110° and 130° C.

This was first prepared by Mialhe, and used as an anæsthetic by Heyfelder and Aran, from the latter of whom it received its name. Being a mixture of varying composition, it does not further deserve notice.

25. *Hexchlorethane; Carbon Trichloride* (*Germ.:* Perchlorœthan; [Kohlenstoffsesquichlorid; Anderthalb-Chlorkohlenstoff;]) $CCl_3.CCl_3 = C_2Cl_6$.—Rhombic crystals, melting at 160° C. and boiling at 182° C. Is the end product of the action of chlorine upon ethyl chloride.

This and the two preceding agents are unsafe anæsthetics, having always a deleterious effect, and often inducing rapid death by apoplexy.

26. *Ethylic Ether; Ether; Sulphuric Ether* (improperly so called) (*Germ.:* Aether; Schwefelæther; Æthylæther); $(C_2H_5)_2O$.—Colorless, mobile liquid, of agreeable, refreshing odor and hot taste. Spec. gr. 0.713 at 20° C.; 0.736 at 0° C. Boils at 35.5° C.

The properties, uses, and effects of ether are so well known that we refrain from giving any further details.

27. *Aldehyde; Ethyl Aldehyde; Acetaldehyde*; (*Germ.:* Aldehyd; [Acetaldehyd; Acetylwasserstoff; Aethylidenoxyd]); $CH_3COH. = C_2H_4O$.—Colorless, mobile liquid, of suffocating odor, inciting to coughing. Spec. gr. 0 807; boils at 21.8° C. Miscible with water, alcohol, and ether in all proportions. Burns with a white flame. Produced by cautious oxidation of alcohol; by burning alcohol or ether with insufficient supply of air; by distilling a mixture of acetate and formate of calcium, etc.

Has been used as an anæsthetic by Simpson, but is too irritating to the air-passages.

III. Propyl Series.

28. *Trichlorhydrin; Glyceryl Trichloride; Allyl Trichloride* (*Germ.:* Trichlorhydrin; Allyltrichlorid; Glycerylchlorür; Propenyltrichlorid); $C_3H_5Cl_3$.—An oily liquid, of sweet, burning taste, and an odor recalling that of chloroform. Spec. gr. 1.417. Boils at 158° C. May be regarded as glycerin, $C_3H_5(HO)_3$, in which the 3 hydroxyls are replaced by 3 chlorine atoms.

29. *Dichlorhydrin* (*symmetrical*); *Dichlorinated Pseudopropyl Alcohol* (*Germ.:* Dichlorhydrin; [Glyceryloxychlorid]); $C_3H_6.HO.Cl_2$.—Colorless liquid of an ethereal odor, spec. gr. 1.383 at 19° C.; boiling at 174° C.

Both of the above have soporific properties; but they act slowly and with difficulty, particularly the latter. Both also considerably affect and irritate the mucous membranes.

30. *Acetone; Dimethyl Ketone* (*Germ.:* Aceton; Dimethylketon; [Methylacetyl; Dimethylkohlenoxyd; Essiggeist]; $(CH_3)_2CO = C_3H_6O$.—A limpid, colorless liquid of a peculiar odor, miscible with water, alcohol and ether, and boiling at 56° C. Formed during the dry distillation of many organic substances, as wood, sugar, etc., and that of acetates.

Has decided anæsthetic properties, but irritates the mucous membranes.

IV. Butyl Series.

31. *Butyl Hydride; Butane* (*Germ.:* Butylwasserstoff; Butan; [Diæthyl]); C_4H_{10}.—Colorless gas, liquefying at − 23° C., and burning with a strongly luminous flame.

Resembles nitrous oxide in its action, according to Richardson.

32. *Butylchloral; Trichlorbutyl-aldehyde* (*Germ.:* Butylchloral; Trichlorbutyl-aldehyde); $C_4H_5Cl_3O$.—An oily liquid, much resembling chloral, produced by the action of chlorine upon (acet-) aldehyde. It is quite probable that the hydrochloric acid formed by the substituting action of chlorine upon a portion of the aldehyde, converts the larger portion of the latter into croton-aldehyde (C_4H_6O), which is further converted into chlor-croton-aldehyde (C_4H_5ClO). The latter is always found in the crude product. It unites with one molecule of chlorine to form butylchloral ($C_4H_5Cl_3O$). The product is shaken with sulphuric acid, the oily liquid separated and distilled: at 147° C. chlorcroton-aldehyde distils over, and butylchloral at 163°–165° C. Butylchloral is split by potassa into allylen-dichloride ($C_3H_4Cl_2$), formate and chloride of potassium. By bringing it in contact with water, *Butyl chloral-hydrate* (formerly and even yet erroneously called *crotonchloral hydrate*) is formed: $C_4H_5Cl_3.O.H_2O$. This crystallizes in small white silky scales, melting at 78° C., very volatile, and the vapors of which incite to tears. It is but little soluble in water, but very easily in alcohol. According to Liebreich, butylchloral hydrate acts principally as an anæsthetic upon the brain and head, without diminishing sensibility in other parts of the body. This is, however, denied by other observers. (See the original paper.)

V. Amyl Series.

32. *Amyl Hydride; Iso-Pentane* (*Germ.:* Amylwasserstoff; [Iso-]Pentan); C_5H_{12}.—Colorless liquid, boiling at 330° C., and having the spec. gr. 0.626.

Used alone, its anæsthetic effects are evanescent, as it is so highly volatile. Richardson, therefore, mixed 1 part of dichloromethane with 8 parts of amyl hydride, obtaining a liquid of an agreeable odor (which he termed "hydramylchlorine"), of the spec. gr. 0.699, boiling at

33.3° C., which he used successfully at several dental operations. The same experimenter used a mixture of equal parts of ether and amyl hydride, which he called "hydramyl-ether."

33. *Amylene; Iso-Pentene* (*Germ.:* Amylen); C_5H_{10}.—Colorless liquid of a disagreeable odor resembling that of rotten cabbage, of spec. gr. 0.66, boiling at 35° C. Burns with luminous flame.

Has been much employed about 20 years ago, in place of ether and chloroform; but has fallen entirely into disuse.

34. *Amyl Chloride; Isopentyl Chloride* (*Germ.:* Amylchlorür; Chloramyl); $C_5H_{11}Cl$.—Colorless liquid of spec. gr. 0.875 and boiling at 102° C. Produced by heating amyl alcohol with hydrochloric acid.

Has been used successfully in dental operations.

35. *Amyl Iodide; Isopentyl Iodide* (*Germ.:* Amyljodür; Jodamyl); $C_5H_{11}I$.—Colorless liquid of faint ethereal odor, and sharp, biting taste, not inflammable, boiling at 147° C. Produced by treating amyl alcohol with iodine and phosphorus.

Is a good anæsthetic, but is too irritant for the air-passages.

36. *Amylic Alcohol;* (chief constituent of) *Fusel Oil* (*Germ.:* Amylalkohol; [Fuselöl]); $C_5H_{11}KO$. Is unfit for practical use as an anæsthetic.

37. *Amylaldehyde; Isovaleric Aldehyde; Valeral* (*Germ.:* Amylaldehyd; Valeral); $C_5H_{10}O$.—Limpid liquid, boiling at 92° C., of a penetrating odor, burning with a luminous, bluish flame. Formed by the action of oxydizing agents upon amylic alcohol.

Is a good anæsthetic; but disagreeable in odor and in effects.

38. *Capryl Hydride; Hexyl Hydride; Hexane* (*Germ.:* Caprylwasserstoff; Hexan); C_6H_{14}.—Colorless liquid boiling at 69–70° C., spec. gr. 0.663.

Is said to be agreeable to inhale and has an effect similar to chloroform.

39. *Ethyl Formate* (*Germ.:* Ameisensäure-Aethylæther); $H.COO.C_2H_5 = C_2H_5.CHO_2$.—Colorless liquid, of a peach-kernel odor; spec. gr. 0.915, boiling at 54° C.

40. *Methyl Acetate* (*Germ.:* Essigsäure-Methylæther); $CH_3.COO.CH_3 = CH_3.C_2H_3O_2$.—Colorless liquid of agreeable odor, spec. gr. 0.956, boiling at 55° C.

41. *Ethyl Acetate; "Acetic Ether"* (*Germ.:* Essigæther); $CH_3.COO.C_2H_5 = C_2H_5.C_2H_3O$. —Colorless liquid, of agreeable and refreshing odor, spec. gr. 0.9068 and boiling at 77° C.

42. *Propyl Acetate* (*Germ.:* Essigsäure-Propylæther, and

43. *Isopropyl* (*Pseudoprophyl*) *Acetate* (*Germ.:* Essigsäure-Isopropylæther), both having the formula $CH_3.COO.C_3H_7 = C_3H_7.C_2H_3O_2$.

44. *Butyl Acetate* (*Germ.:* Essigsäure-Butylæther), $CH_3.COO.C_4H_9 = C_4H_9.C_2H_3O_2$.

45. *Amyl Acetate* (*Germ.:* Essigsäure-Amylæther), $CH_3.COO.C_5H_{11}$.

46. *Ethyl Nitrate* (*Germ.:* Salpetersäure-Aethylæther); $C_2H_5NO_3$.—Colorless liquid, of agreeable odor and sweet taste, of spec. gr. 1.112 at 17° C. and boiling at 86° C.

None of the preceding have been found to be suitable for practical use, though they all have more or less anæsthetic properties.

VI. Aromatic Compounds.

47. *Benzol; Benzene** (*Germ.:* Benzol; Phenylwasserstoff); C_6H_6.—Colorless liquid of peculiar aromatic odor and taste, strongly refracting light, boiling at 82° C., of a spec. gr. 0.88. Contained in coal-tar. Prepared pure, by distilling benzoic acid with caustic lime.—Narcotic.

47. *Oil of Turpentine*, (species of) *Terpene* (*Germ.:* Terpentinöl); $C_{10}H_{16}$.—Spec. gr. 0.86; boils at 160° C. Depresses the excitability of the nervous centres. Produces sleepiness, stupor, and coma.

Among the agents here enumerated there are two which have been examined for the first time by the author for their anæsthetic properties. These are: trichlorethene (monochloræthylidenchlorid), and vinyl trichloride (monochloræthylenchlorid). The former he found to be an efficient anæsthetic, which, in an experiment made on himself, produced no excitement, did not disturb the pulse and was only followed by emesis, which the author assigns to the fact that he had eaten two hours before. The latter agent requires about fifteen minutes to produce narcosis, and it increases the frequency of the pulse considerably (differing thereby from chloroform). The author also examined the blood of animals both before and after subjecting them to narcosis by various of the above-mentioned agents, and his experiments tend to show that the only substance which is split up or decomposed in the blood, is vinyl trichloride.

Preparation of Antiseptic Catgut.

Dr. Kocher, of Berne, having observed the lasting antiseptic effects of *oil of juniper*, employs it now for the preparation of antiseptic catgut. A suitable quantity of the latter is laid, for 24 hours, in pure oil of juniper, and then immediately transferred to a vessel containing alcohol of 95%, in which it is preserved, under tension, being wound (tightly stretched) upon a flat reel of about 10 inches long. If desired, the catgut may be re-immersed, just before being used, in the oil of juniper, but this is not necessary. If it is placed for a day in glycerin, before it is laid in the alcohol, it becomes more pliable. The gut must be cut at the point of turning the edges of the reel, and for this reason the latter is chosen of such a size that the cut pieces of catgut may be of the proper length.

The same author has lately begun to treat silk in the same manner.—*Deutsch. Medic. Zeit.*

* Not to be confounded with benzin.

Lister's Method of Preparing Antiseptic Catgut.

In connection with the preceding article it appears of interest to detail the method lately published by Prof. Lister for preparing catgut ligature. He says (*Lancet*, Feb. 5th, 1881):

"The method of preparation which I have now the honor to bring before you is the following: I dissolve 1 part of chromic acid in 4,000 parts of distilled water, and add to the solution 200 parts of pure carbolic acid or absolute phenol. In other words, I use a 1 to 20 watery solution of carbolic acid, only that the latter is dissolved, not in pure water, but in an exceedingly dilute solution of chromic acid. But minute as is the quantity of the chromic acid, it exerts, when in conjunction with carbolic acid, a most powerful effect upon the gut. The first effect of the addition of the carbolic acid to the chromic solution is to change its pale-yellow color to a rich golden tint. But if the liquid is allowed to stand without the introduction of the catgut, it changes in the course of a few hours to a dingy reddish-brown in consequence of some mutual reaction of the two acids, and a considerable amount of a gray precipitate is formed. If, however, catgut about *equal in weight* to the carbolic acid is added as soon as the ingredients are mixed, the liquid retains its brightness, and the only change observed is a gradual diminution of the depth of the yellow color; the precipitate, which I presume still occurs, taking place into the substance of the catgut. As soon, therefore, as the preparing liquid has been made, catgut equal in weight to the phenol is introduced into it. If you have too large a proportion of catgut, it will not be sufficiently prepared; if you have too small a quantity, it may run the risk of being over-prepared. At the end of 48 hours catgut steeped in such a solution is sufficiently prepared. It is then taken out of the solution and dried, and when dry is placed in 1 to 5 carbolic oil; it is then fit for use.

"The strength of the catgut depends upon different circumstances. In the first place, sheep differ as to the strength of their intestines, and the catgut-maker, if he understands his business, will insist upon having his raw material of the proper kind. In the next place, the intestines must be used fresh. For all this you must rely upon the maker. While soaking the catgut in the preparing liquid, the latter causes a certain amount of softening, and if the catgut is introduced in loose hanks, this will tend to produce a little uncoiling of the twisted cord, which will still further uncoil on drying. It is of very great importance that this should not occur; hence the catgut must be on a stretch, both while soaking and when drying.

"I need not enter into the mode in which this can be done by the manufacturer. But if a surgeon desires to prepare it himself, he may, for instance, take two large test-tubes, one a little larger than the other, and he may wind the catgut on the smaller tube, fixing one end by sealing wax, winding it round and then bringing it up again, and fixing the other end at a higher level than the liquid will come to, putting sufficient liquid into the larger test-tube, and introducing the smaller test-tube with the catgut wound round it, with a little shot to keep it down. After forty-eight hours it is taken out, and left exposed until the catgut is completely dry."

Separation and Determination of Arsenic.

(Abstract of a paper by Emil Fischer, in *Liebig's Annalen d. Chem.*, 208, 182.)

Scheider and Fyfe proposed, in 1851, independently of each other, to separate arsenic by distillation with hydrochloric acid, as trichloride, and to determine the latter in the distillate. This apparently simple process, however, has found but little favor, since only arsenious acid or compounds respond to the process, while arsenic acid requires to be first reduced, and this reduction itself has been found somewhat irksome and unsatisfactory. Emil Fischer has, however, lately ascertained that this reduction may be easily accomplished by means of ferrous chloride, and he bases on the latter a new process of separating arsenic which is specially valuable by the thoroughness and ease with which the separation takes place.

On distilling any oxide of arsenic with hydrochloric acid and ferrous chloride in excess, the arsenic passes over rapidly and completely as trichloride, while, practically, *all the other metals of the hydrosulphuric acid group remain behind.* In presence of mercury, antimony, and tin, the ferrous chloride has the additional advantage that it completely destroys, or at least reduces to a minimum, the volatility of these elements in hydrochloric solution.

The determination of arsenic in the distillate is very simple. It is either precipitated as sulphide and treated in the usual manner (particularly according to Bunsen's process); or the liquid is neutralized with potassium carbonate and the arsenious acid determined volumetrically by means of iodine solution. The metals remaining in the retort or flask may be separated from the iron by hydrosulphuric acid and determined in the usual manner.

To apply the above process successfully, the substance to be examined should be in solution in hydrochloric acid. The presence of a small quantity of sulphuric acid is not hurtful. But the liquid must be free from nitric acid, as the latter would oxidize the ferrous chloride. Metallic alloys are best dissolved at once in hydrochloric acid with addition of potassium chlorate. The sulphides of arsenic, antimony, and tin are oxidized (according to Bunsen), in alkaline solution, by means of chlorine, and the alkaline chlorate which is formed at the same time, destroyed by a brief warming with strong hydro-

chloric acid. If nitric acid has been used, it must be completely removed by heating with sulphuric acid.

The distillation is best performed in a round-bottomed flask of about 600 *cc.* capacity, placed at an angle of about 45° (to prevent spattering into the condenser), and connected by a glass tube with a Liebig's condenser. If rubber stoppers are used, they must first be boiled in dilute solution of soda to remove sulphur which would cause the formation of sulphide. The distillation of the arsenical liquid must be interrupted whenever the volume of the liquid in the flask has been reduced to 30 or 35 *cc.*, since, on further concentration, some of the other metallic chlorides might likewise be volatilized. The point to which the distillation may be carried is best marked on the outside of the flask. The arsenical liquid having been poured in the flask, 10 to 20 *cc.* of a cold saturated solution of ferrous chloride* are added and, if necessary, sufficient 20% hydrochloric acid to produce a total volume of about 150 *cc.* Under these circumstances distillation proceeds quietly, provided the flame is so regulated that 2 to 3 *cc.* pass over during each minute. The distillate is best received in large Erlenmeyer's flasks of about 1 liter capacity. If the quantity of arsenic is not more than 0.01 gram, it passes over completely during the first distillation. If larger quantities are present, the operation must be repeated. For this purpose, the flask is allowed to cool a little, 100 *cc.* of 20% hydrochloric acid are added, and the distillation recommenced. Many trials showed that no more arsenic was present in the flask after four distillations, even though 1 gram of arsenious acid had been operated on. If the arsenic is to be determined gravimetrically, it is precipitated, in the cold, by hydrosulphuric acid, the precipitate transferred, after some time, to a weighed filter, washed with water, alcohol, and carbon disulphide, and finally dried at 110° C. to constant weight.

The above process accomplishes the complete separation of the arsenic from lead, copper, bismuth, cadmium, and mercury, in one process. In presence of much antimony or tin, however, it is possible that some of these may likewise be carried over; hence the process must be repeated upon the distillate, which is again mixed with a little ferrous chloride, and re-distilled. This time only arsenic is carried over.

The author of the process does not claim that it is preferable to the more simple method of Bunsen, if only arsenic and antimony are to be separated. But it is the shortest and easiest method whenever arsenic is to be separated from a complex mixture of the metals of the hydrosulphuric acid group.

* This is prepared as follows: Iron filings in excess are treated with hydrochloric acid of 25%, the mixture, after the first violent reaction is over, warmed until scarcely any more hydrogen gas is given off, and then filtered. On cooling, the filtrate deposits an abundant crop of crystals, which must be examined to insure the absence of any metals of the hydrosulphuric acid group.

[The application of the process to the separation of arsenic from tin, and some other minor details mentioned by the author, have been omitted from the above abstract.]

Stability of Morphine Solutions.

THERE is a common belief, among medical men, that sulphates are more easily decomposed in solution than hydrochlorates (or muriates), and from the fact that Binz actually found solutions of the hydrochlorate of quinine much more stable than those of other salts of this alkaloid, a conclusion was drawn that the same would be the case also with other alkaloids. Professor Hamburg, of Stockholm, has, however, lately proved that in the case of morphine, at least, the sulphate is more stable than the hydrochlorate.* He exhibited, at a meeting of the Swedish Medical Association, several solutions of salts of morphia to demonstrate this fact. One, a solution of the sulphate, made in 1869, had only acquired a slight color, was but little turbid, and was found, on examination, to have suffered hardly any more alterations than one prepared in 1880, and preserved under the same conditions. In all the solutions (4 : 100) exhibited there were found prismatic crystals (giving the reactions of morphia and soluble in caustic soda), spores, and mycelia; in some of the solutions there were cells with swinging motion. The only solution which remained completely free from turbidity was one prepared with boiling water, and filtered through paper, while boiling hot, into the vial in which it was preserved. He draws the following conclusions from his observations:

1. The most suitable morphine salt, for solutions, is the sulphate.

2. The menstruum should be pure distilled water, free from ammonia, nitric, nitrous, or phosphoric acids, the absence of which is to be ascertained by exact analysis.

3. The solution must be made with boiling water, and filtered through paper (not glass-wool), directly into the vial or vials in which it is to be kept.

4. The solution should be preserved in small well-filled glass-stoppered vials, capped with double cap of bladder and parchment.—*Pharm. Zeit.*, No. 49.

Jaborandi in Glaucoma.—DR. P. D. KUYSER, of Philadelphia, has found that jaborandi, by its depleting effect upon the circulation, serves to relieve ocular tension and, for the time, lessens the pain and other disturbances of vision in eyes affected with early stages of glaucoma. —*Med. Times.*

* This fact has long been known and recognized in this country. The hydrochlorate of morphine is comparatively little in use.—ED. N. R.

RECENT PAPERS.

Notes on Pharmacopœial Preparations.

(Extracts from the official proposals for alterations of the first edition of the *Pharm. Germ.*)

[Continued from page 119.]

Ammonium Iodide.—The best method of preparation is that of Jacobsen, namely, by mutual decomposition of ammonium sulphate and potassium iodide, and separation of the potassium sulphate by alcohol. The resulting salt, which is white at first, gradually turns yellow (no matter how well protected from the air), finally brown, and then smells strongly of iodine. Such a colored salt must be re-worked, but this must not be done with mere ammonia, though this apparently removes the defect by rendering it white again. Ammonia alone, with iodine, forms both iodate and iodide of ammonium, and the free acid in the gastric juice immediately re-generates free iodine from the former. The proper way is to add to the colored solution of the salt enough sulphide of ammonium until all color has disappeared, then to filter from the deposited sulphur, and to rapidly evaporate to dryness on the water-bath. In case of necessity, and when time presses, this process may be abbreviated with a smaller quantity of the salt, such as may be ordered in a prescription, by rubbing the salt in a warm mortar, or in a capsule on the water-bath, with a few drops of dilute sulphide of ammonium until it has become colorless, and then triturating until it is dry. The trace of accompanying sulphur is harmless.—(*Biltz.*)

Dry Albuminate of Iron.—Mix 100 grams of egg-albumen with 400 grams of water by agitation, set aside for twelve hours and strain. To the strained liquid add 250 cubic centimeters of a cold saturated solution of chloride of sodium and afterwards 40 *cc.* of solution of ferric chloride (spec. gr. 1.480, containing 43.5 per cent of anhydrous ferric chloride), previously diluted with 160 *cc.* of water. After 12 hours, add 3 liters of water, shake and collect the precipitate. Wash it with water to remove the chloride of sodium, and dry it so that a doughy mass results. Next add 60 gm. of sugar, and dry the whole on the water-bath. After it is dry, add enough sugar so that 10 parts of the product contain 1 part of albuminate of iron.

The product is a fine powder, only partially soluble in water, of a sweet taste, and containing 0.65 to 0.66 per cent of dry ferric hydrate.—(After *Hager.*)

Solution of Acetate of Aluminium.—Mix 72 parts of powdered potassa-alum and 115 parts of powdered acetate of lead in a mortar and triturate them with 900 parts of boiling distilled water. When cold, filter. Wash the residue upon the filter with sufficient distilled water to obtain 1,000 parts of filtrate. The latter contains 3 per cent of acetate of aluminium.—(*Deutsch. Ap. Ver.*)

Tincture of Acetate of Iron (*Rademacher*).—1. Triturate 23 parts of pure ferrous sulphate and 24 parts of acetate of lead in a porcelain mortar until a thick magma results, then add gradually 48 parts of distilled water and 96 parts of vinegar, pour the whole into a flask, which is to be lightly closed, and digest for three days at a temperature of 30° to 40° C. (86° to 104° F.), repeatedly agitating. Filter and let the filtrate stand for 30 days, occasionally shaking in a wide-mouthed flask only half filled and loosely covered with a plate of glass. Then add 80 parts of alcohol. Let it stand 10 more days in the same flask and finally filter.

The tincture is clear, has a reddish-brown color and a spec. gr. between 0.960 and 0.970.—(*Wilms.*)

2. Dissolve 69 parts of ferrous sulphate in 144 parts of distilled water, and 72 parts of acetate of lead in 288 parts of vinegar. Mix the two solutions and add 240 parts of alcohol. Let the whole stand for six months in a dark place, in a capacious, half-filled vessel, loosely covered with blotting-paper, and shake occasionally. Finally filter.

The tincture is a clear, red-brown liquid, of spec. gr. 0.982, containing one per cent of metallic iron.

It should be preserved in a well-closed vessel, protected from the light (*Schneider*).

Quinia Tannate.—Dissolve 20 parts of tannin in 200 parts of cold water, and filter into this liquid slowly a solution of 9 parts of sulphate of quinine in 270 parts of cold water, to which enough acetic acid had been added to dissolve the quinine salt. Pour off the liquid from the precipitate and add to it enough ammonia to neutralize nearly all the acid (but not entirely). This causes a further separation of tannate of quinine. The united precipitates are first dried at 30°–40° C. (86°–104° F.), and finally at 100° C. (212° F.), in a dark place. The product contains 25 per cent of quinine.

The latter may be assayed by rubbing a portion of the salt with double its weight of caustic lime, and enough water to produce a thick magma, which is to be dried on the water-bath and powdered, after which the alkaloid is extracted by hot chloroform.—(*Deutsch. Ap. Ver.*)

Analysis of Public Water Supplies.*

(Instructions for water analysis in England, prepared by a committee appointed by the Society of Public Analysts.)

WHEN the Society of Public Analysts arranged to publish monthly analyses, made by its members, of the water supplies of the leading towns in the kingdom, they contemplated the possibility of bringing about more general agreement than had formerly been practicable in the processes used, and the modes of reporting results. The scheme proposed has met with marked acceptance among analysts who, no doubt, in many cases, may have reason to prefer other methods, but who have given way in favor of a system which appears to concern the general good of the profession, and to be for the public advantage.

This concord of opinion has already rendered it necessary to print a second edition of the instructions for water analysis, which were issued to the analysts engaged; and a third, but more detailed edition, is now called for. To answer the requirements of those who have been in correspondence with the secretaries on the subject, this third edition contains such full and explicit details as will enable any competent analyst to execute a water analysis in such a way as to make the results *directly comparable* with those of another analyst working under these instructions. The latter do not take the form of an elementary treatise, but merely specify the essential details of the manipulation.

The Water Committee of the society has not been free from difficulty in the duty which it has undertaken, as it was only possible to adopt processes the details of which were such as could be carried out with ease and uniformity by the great body of analysts. On this account some matter, in itself valuable, has necessarily been omitted, such as the estimation of organic carbon and nitrogen, the instructions for more complete microscopical examinations, and Messrs. Crookes, Odling, and Tidy's method for taking the color of water.

The Committee has freely availed itself of published works and papers on water analysis, and has, as far as possible, tested every reported process, whether contained in the well-known treatises on the subject, or in the various papers contributed to their own and other societies.

The method of reporting the results in *grains per gallon* has been adopted after very careful and mature consideration. The Committee are well aware that if the reports were made in parts per 100,000, they would be equally intelligible to analysts generally, but they cannot

* From *The Analyst* (London) June.—The task of examining public water supplies is one which, on the continent of Europe, often falls to the lot of pharmacists. In this country this is more rarely the case, but as the number of well-educated and scientifically trained pharmacists is constantly increasing, the time will surely come when pharmacists will be called upon, particularly in the country and in smaller towns, to act as sanitary chemists. For this reason we have thought the republication of at least a portion of the above document to be of value and utility.—ED. N. R.

overlook the fact that these reports have, in many cases, to pass into the hands of those to whom a statement in parts per 100,000 is more or less unintelligible. The instructions are worded in such a way that analysts can use either the English or the metric system of weights and measures for their own work, and can prepare their standard solutions according to either system, simply making their reports uniform by adopting the English figures. The tables of aliquot parts of a gallon, and factors, which are included in the instructions, will facilitate the necessary calculations.

The Preparation of Reagents.*

A.—REAGENTS FOR THE ESTIMATION OF CHLORINE.

1. *Standard Solution of Silver Nitrate.*—Dissolve 4.7867 parts of pure recrystallized silver nitrate in distilled water, and make the solution up to 1000 parts. The solution is to be standardized against the standard solution of sodium chloride, and adjusted if necessary: 1 cc. = .001 grams of chlorine, or 10 grains = .01 grain chlorine.

2. *Standard Solution of Sodium Chloride.*—Dissolve 1.648 parts of pure dry sodium chloride in distilled water and make the solution up to 1000 parts. 1 cc. solution contains .001 chlorine, or 10 grains contains .01 grain chlorine. The pure sodium chloride is best prepared by taking a saturated solution of best commercial sodium chloride, filtering it cold, and passing a current of HCl gas into it. The gas produces a fine crystalline precepitate of pure sodium chloride, which must be washed rapidly with cold water and dried at about 500° to 600° F.

3. *Potassium Monochromate.*—50 parts of potassium monochromate are dissolved in 1000 parts of distilled water. A solution of silver nitrate is added until a permanent red precipitate is produced, which is allowed to settle.

B.—REAGENT FOR THE ESTIMATION OF PHOSPHORIC ACID.

4. *Molybdic Solution.*—One part pure molybdic acid is dissolved in 4 parts ammonia, sp. gr. 0.960. This solution, after filtration, is poured with constant stirring into 15 parts of nitric acid of 1.20 sp. gr. It should be kept in the dark and carefully decanted from any precipitate which may form.

C.—REAGENTS FOR THE ESTIMATION OF NITROGEN IN NITRATES.

5. *Solution of Silver Sulphate.*—A saturated solution of silver sulphate in distilled water.

6. *Concentrated Sulphuric Acid.*—In order to insure freedom from oxides of nitrogen, this should be kept in a bottle containing mercury, and agitated from time to time, which will insure their absence.

7. *Metallic Aluminum.*—As thin foil.

8. *Solution of Sodium Hydrate.*—Dissolve 100 parts of solid sodium hydrate in 1000 parts of distilled water. When cold introduce a strip of about 100 square cms., say 15 square inches, of aluminum foil. previously heated to just short of redness, wrapped round a glass rod. When the aluminum is dissolved, boil the solution briskly in a porcelain basin until about one-third of its volume has been evaporated, allow it to cool, and make it up to its original volume with water free from ammonia. The solution must be tested by a blank experiment, to prove the absence of nitrates.

9. *Broken Pumice.*—Clean pumice broken into pieces of the size of small peas, sifted free from dust, heated to redness, and kept in a closely stoppered bottle.

10. *Hydrochloric Acid free from Ammonia.*—If the ordinary pure acid is not free from ammonia, it should be distilled. As only two or three drops are used in each experiment, it will be sufficient if that quantity does not contain an appreciable proportion of ammonia.

11. *Copper Sulphate Solution.*—Dissolve 30 parts of pure copper sulphate in 1000 parts of distilled water.

12. *Metallic Zinc.*—As thin foil. This should be kept in a dry atmosphere, so as to be preserved as far as possible from oxidation.

13. *Standard Solution of Ammonium Chloride.*—(See 15.)

14. *Nessler's Solution.*—(See 16.)

D.—REAGENTS FOR THE ESTIMATION OF NITROGEN AS AMMONIA AND ALBUMINOID AMMONIA.

15. *Standard Solution of Ammonium Chloride.*—Dissolve 3.146 parts of pure ammonium chloride in 1000 parts of distilled water free from ammonia. For use, dilute this with pure distilled water to ten times its bulk.

16. *Nessler's Solution.*—Dissolve 35 parts of potassium iodide in 100 parts of water. Dissolve 17 parts of mercuric chloride in 300 parts of water. The liquids may be heated to aid solution, but if so must be cooled again. Add the latter solution to the former until a permanent precipitate is produced. Then dilute with a 20 per cent solution of sodium hydrate to 1000 parts; add mercuric chloride solution until a permanent precipitate again forms; allow to stand till settled, and decant off the clear solution. The bulk should be kept in an accurately stoppered bottle, and a quantity transferred from time to time to a small bottle for use. The solution improves by keeping.

17. *Sodium Carbonate.*—A 20 per cent solution of recently ignited pure sodium carbonate.

18. *Potassium Permanganate Solution.*—Dissolve 200 parts of potassium hydrate and 8 parts of pure potassium permanganate in 1100 parts of distilled water and boil the solution rapidly till concentrated to 1000 parts.

19. *Distilled Water, free from Ammonia.*—Distilled water which gives no reaction with Nessler test is pure enough. But, if this is not available, take the purest distilled water procurable, add pure ignited sodium carbonate in the proportion of one part per 1000, and boil briskly until at least one-fourth has been evaporated.

E.—REAGENTS FOR THE ESTIMATION OF OXYGEN ABSORBED.

20. *Standard Solution of Potassium Permanganate.*—Dissolve 0.395 parts of pure potassium permanganate in 1000 of water. Each cc. contains 0.0001 gram available oxygen, and each one grain contains 0.0001 grain.

21. *Potassium Iodide Solution.*—One part of the pure salt re-crystallized from alcohol, dissolved in 10 parts distilled water.

22. *Dilute Sulphuric Acid.*—One part by volume of pure sulphuric acid is mixed with three parts by volume of distilled water, and solution of potassium permanganate dropped in until the whole retains a very faint pink tint, after warming to 80° F. for four hours.

23. *Sodium Hyposulphite.*—One part of crystallized sodium hyposulphite dissolved in 1000 parts of water.

24. *Starch Water.*—One part of starch to be intimately mixed with 500 parts of cold water, and the whole briskly boiled for five minutes, and filtered, or allowed to settle.

F.—REAGENTS FOR THE ESTIMATION OF HARDNESS.

25. *Standard Solution of Calcium Chloride.*—Dissolve eight grains of pure crystallized calc spar in dilute hydrochloric acid in a platinum dish, adding the acid gradually, and taking precautions to prevent loss by spurting. When all is dissolved, evaporate to dryness in a water-bath, add a little distilled water and again evaporate to dryness. Repeat several times to insure the expulsion of all the acid. Lastly, dissolve in water and make up to one-tenth of a gallon. For use: dilute to 10 times its volume, the result will be water of 8° of hardness. Or, instead of making the solution thus, dissolve 1.376 grains pure crystallized selenite in $\frac{1}{10}$ gal. water, and that will be the water of 8° of hardness.

26. *Standard Soap Solution.*—Take 150 parts of lead plaster (Emplastrum Plumbi P. B.), rub in a mortar with 40 parts dry potassium carbonate; when fairly mixed add absolute alcohol which has been standing over potassium carbonate for a few days. When solution is complete, filter and add sufficient recently boiled distilled water to

* All solids are to be weighed and liquids measured.

reduce the alcohol to the strength of proof spirit. The solution of soap must then be reduced to the proper strength with proof spirit, made by mixing recently boiled distilled water with absolute alcohol. It should be of such strength as just to form a permanent lather, when 180 grain measures are shaken with 1000 grains of a solution of lime of 8° hardness. The following table will then give the degrees of hardness corresponding to the number of grain measures employed:

Hardness.	Grain M.	Hardness.	Grain M.
0°	9	5°	120
1°	29	6°	140
2°	54	7°	160
3°	77	8°	180
4°	99		

after which 1 degree = 20 grain measures. This is the last solution recommended by Dr. Clarke, the one referred to in his patent not being quite accurate.

Muriate of Apomorphia.—Dr. Carl Beck finds that muriate of apomorphia administered in cases of bronchial catarrh rapidly renders the secretions more fluid and facilitates the discharge of the thick plugs of mucus which interfere with respiration; $\frac{1}{64}$ of a grain is a sufficient dose for an infant, $\frac{1}{10}$ of a grain being added for each year. It may be prescribed with dilute muriatic acid, syrup and water, and the dose repeated every second or fourth hour.

Apomorphine as an Expectorant.—Dr. Beck confirms the favorable results obtained by others with apomorphine as an expectorant in chronic catarrh, particularly Laennec's *catarrh sec;* in broncho-pneumonia after the crisis is over, and in capillary bronchitis. He usually orders, for adults, the following:

℞ Apomorphiæ hydrochlor.....grains	1 to 1¼	
Acid hydrochlor. dil..... "	15	
Aquæ destillatæ.....fl.	℥ss	4
Syrupi.....fl.	℥j	1

Mix. *Dose:* A tablespoonful every 2, 3, or 4 hours. For children, the dose will be from a teaspoonful to a dessertspoonful.

Amyl Nitrite as a Remedy for Ague.—Dr. Saunders, of Indore, India, has reported successful results following the inhalation of amyl nitrite in the early stage of an attack of ague. Sweating follows promptly upon a resort to the remedy and the attack is cut short.

Dr. G. Griswold, of this city, and others, have made use of the well-known sudorific powers of pilocarpine to produce the same effect. With either remedy it is said that sometimes the sweating stage does not follow the recovery from the "chill" and that the attack appears to be aborted.

Xanthic Acid a Precipitant for Protein Bodies.—According to Ph. Joeller, 5 to 10 drops of a 10% solution of potassium xanthate are sufficient to precipitate all proteïdes from 200 cc. of freshly expressed grape-juice. The vegetable acid liberates xanthic acid, which, in its turn, precipitates the albuminoids. Of the latter, only traces of ammonia are left. It is necessary that the precipitation proceed slowly, hence the liquid should not be violently shaken. A mere cloudiness does not prove the presence of proteïn bodies, since xanthic acid itself, when it is set free, is gradually precipitated.—*Ber. d. Deutsch. Chem. Ges.*

[Xanthic or ethyl-disulpho-carbonic acid, or ethyl-dithio-carbonic acid, has the composition, $(C_2H_5)H.COS_2$, or $C_3H_6OS_2$. Its potassium salt is prepared by saturating boiling alcohol of 0.800 with caustic potassa, and then dropping into the solution disulphide of carbon until it ceases to be dissolved, or until the liquid ceases to be alkaline. On cooling the whole to −18° C. (0.4° F.), the potassium salt separates in brilliant-colored prisms, which must be quickly pressed between bibulous paper, and dried in vacuo. It is freely soluble in water, but the solution does not keep long.—Ed. N. R.]

Reaction for Distinguishing the Ptomaines from the Vegetable Alkaloids.—(P. Brouardel and E. Boutmy.) If a substance isolated by the method of Stas behaves with potassium iodo-mercurate as do the vegetable alkaloids, and if it has no action on potassium ferricyanide, a vegetable alkaloid is present. If the ferricyanide is reduced to ferrocyanide, whilst the base is also precipitated by an iodo-mercurate, it is a ptomaine. In applying the test, the base extracted from the body under examination is converted into a sulphate, and a few drops of the solution of this salt are placed in a watch glass which already contains a little ferricyanide dissolved. A drop of neutral ferric chloride added to the mixture gives a precipitate of Prussian blue if the base isolated is a ptomaine. [*Ptomaine* is a generic term employed to designate the peculiar poisonous alkaloids discovered by F. Selmi in human bodies after death.—Ed. R. N.]

Armand Gautier, in commenting upon the reaction described above, states that while indeed no naturally occurring alkaloids have been found to give the above reaction of ptomaines, yet there are many artificial compounds which react in the same manner. Among them are phenylic bases, as aniline, methyl aniline, paratoluidine, diphenylamine; pyridine bases and bodies like diallylenediamine and acetonamine. Nevertheless the reaction is important as affording an additional criterion in doubtful cases.—*Répert. de Pharm.*, 1881, 276; 278.]

Alkaloids produced during Digestion.—Other additions to the list of artificial alkaloids have been contributed by M. Tanret. When an acidified solution of a peptone, obtained either with pancreatine or pepsine, is treated with the ordinary reagents for alkaloids, a precipitate is formed differing from those yielded by alkaloids only in being soluble in an excess of peptone, alkaloidal precipitates not being soluble in presence of an excess of salts of the alkaloids. This reaction, however, is not conclusive of the presence of an alkaloid, and therefore M. Tanret was induced to make some experiments to determine whether alkaloids are produced in the act of digestion (*Comptes Rendus*, xcii., 1163). He found that when a solution of a peptone is treated with neutral carbonate of potash or caustic potash and shaken with ether, a volatile alkaline liquid is dissolved out, presenting all the characters of an alkaloid. If, however, the peptone is first allowed to become putrid, there is obtained a considerable quantity of a solid non-volatile alkaloid. Crystalline hydrochlorates of both these alkaloids have been prepared. When instead of a carbonate or a caustic alkali an alkaline bicarbonate is used, no alkaloid is removed by the ether, and from this M. Tanret infers that the alkaloids do not exist already formed in the peptone, but are produced by the action of the alkalies, because he finds that the base of the salt of a peptone alkaloid, as prepared by him, is set free by a bicarbonate. This, however, would not appear to be the only possible explanation. The peptone alkaloids give by their action upon ferricyanide of potassium the prussian blue reaction indicated recently by Messrs. Brouardel and Boutmy as characteristic of ptomaine alkaloids, but not immediately.—*Pharm. Journ.*

Bottling Wax Prepared from a By-product.—(J. F. Brown.) The balsam of tolu, which has been used for preparing the syrup, has hitherto been utilized only in making a varnish for pills, and it therefore accumulates in course of time to a considerable extent.

A composition, useful as bottling wax, may be prepared by stirring into the melted balsam one-tenth its weight of levigated bole. It sets quickly with a fine glossy surface, and is less brittle than the wax generally employed.

A mixture of residual balsam, amber resin, of each 4 parts; Venice turpentine, vermilion, of each 1 part; melted together and well stirred forms sealing-wax of very fair quality.—*Pharm. Journ.*

The Preparation and Constitution of Oil of Wine.—During the manufacture of ether, in many chemical works, the still in which the conversion of alcohol into ether is effected is kept in continuous operation for about 4 weeks, during which time some 800 kilos of alcohol are consumed. On now opening the still, for the purpose of renewing the sulphuric acid, there are found, on the surface of the liquid, black tar-like masses, which appear to be high condensation products of oil of wine. The crude ether is freed from sulphuric acid by milk of lime, and then subjected to fractional distillation. Ether and alcohol having been distilled off, there is next obtained a mixture of water, very little alcohol, and some other bodies at temperatures between 90° and 120° C., which is received in carboys, and on the surface of which "oil of wine" collects on standing, as the proportion of alcohol is not large enough to keep it in solution. The quantities of this product vary between 2 and 4 kilos.

On washing this product with cold water and drying with fused chloride of calcium, it represents a clear yellowish, neutral liquid of a peculiar sweet odor, a spec. gr. of 0.903, and *remaining unaffected* by contact with water or *alkalies*, by which property it differs from the oil of wine heretofore known, which is prepared either by the distillation of ethyl-sulphates or by distilling alcohol and ether in certain proportions [comp. U. S. Pharm. "Oleum æthereum."] The above oil of wine, a by-product of the manufacture of ether, is a mixture of various compounds, chiefly hydrocarbons, ketones, and ethers. The following bodies have been recognized in it with certainty: di-iso-amylene $C_{10}H_{20}$; ethyl-amylic ether $C_2H_5.C_5H_{11}.O$; also ethyl-amyl-ketone and methyl-hexy-ketone.—E. C. HARTWIG in *Journ. f. prakt. Chem.*, 1881 (23), 449.

*** Polypodium Incanum as an Emmenagogue.**—The editor of the *Med. Times* says: "We have received from Dr. C. H. Mastin, of Mobile, a specimen of the above plant, with the following statement:

'It has been brought to my notice by a very intelligent lady from the interior of this State, who informs me that it is largely used by the negroes and others in the country as an emmenagogue, and that, in her observation, it is vastly more reliable than anything she has known used.

'She tells me that she knows of one plantation upon which there are a very large number of negroes residing, and that she is positive there has not been a child born there for years past, and it is well known that the females are in the habit of anticipating every menstrual period by a cup of the decoction of this plant.

'I have under my care at this time a lady from the country who has been suffering from uterine trouble and difficult menstruation, who tells me she is always quickly relieved by a teacup of the decoction of the plant which I send you.'"*

Detection of Alcohol in Transparent Soaps.—(H. JAY.) 50 grams of the soap are finely cut and introduced into a flask of 200 *cc.* capacity; 30 *cc.* of sulphuric acid are then added, and the whole agitated until dissolved. The mixture becomes hot and turns somewhat brown. It is mixed with water and allowed to cool, until the separated fatty acids have solidified. The aqueous liquid is now poured off, nearly neutralized and distilled. The first 25 cc. of the distillate are collected separately, mixed (according to Riche and Bardy) with ½ *cc.* of sulphuric acid of 1.13, and ½ *cc.* of solution of potassium permanganate (15 gm. per liter). After a few minutes, 8 drops of a cold saturated solution of hyposulphite of sodium and then 1 *cc.* of a solution of fuchsine (0.1 gm. per liter) are added. If alcohol was present, a handsome violet color will make its appearance either at once or within about 5 minutes. If it does not appear within 15 minutes, the subsequent appearance of the color cannot be relied upon as a test for alcohol.—*Chem. Centralblatt*, 12.

The Storage of Electricity.—In the domain of physics, the subject which probably has attracted most attention during the last few months has been M. Faure's secondary battery for the storage of electric force. It is just now passing through the sensational stage, which seems to have become almost as inevitable to new inventions as the measles to juvenile humanity; but if one-half what has been predicted concerning it turns out to be true, it might work almost as great a revolution as the application of steam as a source of power. In a letter to *The Times* (June 9th), Sir William Thomson describes the results obtained with a "box of electricity" containing "four Faure batteries, each about five inches in diameter and ten inches high, forming a cylindrical leaden vessel, and containing alternate sheets of metallic lead and minium, wrapped in felt and rolled into a spiral, wetted with acidulated water." The batteries in this box, weighing altogether about 75 pounds, were charged in Paris with electricity from an ordinary Grove's battery to the estimated extent of one million foot-pounds, and then taken to Glasgow, where they were submitted by Sir William Thomson to tests extending over three weeks. Sir William Thomson expresses an opinion that it is not an exaggeration to say that the above amount of dynamical energy was retained in the box during its seventy-two hours' journey, and that the waste of the stored energy by time is not great. For instance, one of the four cells, after being discharged, was recharged and left undisturbed during ten days, at the end of which time it was tested, and yielded upwards of a quarter of a million foot-pounds, or an excess over M. Faure's estimate. Curiously enough, the first practical application made of the invention in this country was the ignition of the platinum wire of an écraseur for the removal of a nævoid tumor of the tongue, for which purpose one of the cells was taken out and carried to the place of operation. But the largest useful application which Sir William Thomson conceives to be at present waiting for the Faure battery is to do for the electric light what a water cistern in the house does for an inconstant supply, and he estimates that a battery of seven such "boxes" as that described would suffice to give the incandescence in Swan or Edison lights to the extent of one hundred candles for six hours without any perceptible diminution of brilliancy. Such an accumulator he would appear to anticipate being set up wherever a store of dynamic energy is required, and kept charged from the engine by the house supply wire, the supply being controlled by an automatic check.

Albuminate of Tannin as a Remedial Agent is recommended by Dr. Lewin, of Berlin; this writer has found that small quantities of tannin are taken into the lymphatic circulation with food and sent into the blood-circulation as alkaline tannates. The tannin thus absorbed is not metamorphosed, some remaining and being discharged through the kidneys as tannin. It would thus appear that tannin is capable of reaching the various parts of the body in a condition capable of producing therapeutic effects. The secretion of urine is diminished under its influence, and Lewald has shown that tannin is capable, when taken internally, of diminishing the amount of albumen discharged.

LEWIN says that tannin in solution and powder not infrequently fail to have therapeutic effects owing to the irritation of the gastro-intestinal canal which they may cause. These evil effects are obviated by employing it in the form of an albuminate for which he recommends:

℞ Sol. acid. tannici (2%).....gr. cl.
Add, while shaking, sol. albumin. ovi....gr. c.

M. This gives good results, even when much diluted, and may even be given to young children.—*Med. Times.*

* Wood gives the following description of this fern: *P. incanum* Sw., Fronds deeply pinnatified, segments alternate, linear, very entire, obtuse, scaly beneath, the upper ones gradually smaller; stipe scale, bearing the fertile segments near the apex; sori solitary and distinct. A parasitic fern, 3-6 feet high, growing on the inclined, moss-clad trunks of living trees, particularly of the huge sycamore and magnolia, in the damp forests along rivers, United States, also Southern. The scales resemble the inclusia of other ferns, but have no fruit under them. The veins are invisible.—ED. N. R.

Geometrical Equivalents of Homœopathic Dilutions.—In a recent work by Prof. Gust. Jaeger, entitled "*Die Neuralanalyse*," in which he gives an account of a sensitive instrument (the "æsthesiometer") designed to record nervous excitement or depression, and in which he gives graphic pictures of the nerve-undulations produced by various homœopathic dilutions, he attempts to convey an idea of degree of dilution to space, which we here translate:

"I desire here to compute for the benefit of those who have no correct conception of dilutions—among them even homœopathic physicians—the magnitude of the quantities involved. But I cannot select for this purpose the 2000th potency,* because this is beyond the limits of conception. I shall content myself with the 100th potency.† In order to dilute 1 milligram or 1 cubic millimeter of a remedy to this potency we require a quantity of liquid, which, when expressed in cubic millimeters, is represented by a figure consisting of 1 with *one hundred* oughts.

Let us imagine this mass to be a cube, then we obtain the figure representing the length of one of the edges of this cube, by dividing with 3; that is, one edge of this cube has a length of millimeters expressed by a 1 with 33 oughts. Substituting meters for millimeters, we have a 1 with 30 oughts, that is a quintillion.‡ The distance of the earth from the sun is, in round numbers, one hundred and fifty thousand millions (150,000,000,000) of meters. Therefore if we wish to express the length of the edge of our cube in terms of solar distances, we have to take off 11 oughts and divide by 1 : 5. There will remain a 1 with 19 oughts, which are ten trillions of solar distances (disregarding the unimportant division by 1 : 5). Now let us take the greatest measure used in astronomical calculations, namely the distance of Sirius, which is equal to 1 million times the distance of the earth from the sun, we will have to take off 6 oughts, and still retain 10 billions. Dividing by 1 : 5, we obtain for the edge of our cube a length of 7 billions of Sirius-distances. While this already exceeds every conception of space which we are capable of, the matter becomes still more infinite, if we deal with the 2000th potency. The figure which would express the length of the edge of a cube containing this quantity, in terms of Sirius distances, would consist of a 1 with not less than 646 oughts!"

Testing Salicylate of Sodium.—Commercial salicylate of sodium should respond to the following test, according to the *Pharm. Centralhalle* (No. 23): Upon a clean plate of glass lay two broad strips of litmus-paper, one blue, the other red; moisten them with distilled water and sprinkle upon each a thin layer of the salt. Neither during the act of dissolving nor afterwards should there be seen any blue points or streaks upon the red paper; and the blue paper must show a red reaction. If any blue streaks are produced on the red strip, or the whole paper be rendered blue, the salt is improperly prepared. Additional requirements of a good preparation are, that it must form a clear solution in water and in boiling alcohol, and that it is seen to consist, under the microscope, of minute transparent scales of a mother-of-pearl lustre, without the presence of any flour-like bodies.

* Prof. Jaeger claims that his æsthesiometer is still capable of recognizing effects of homœopathic dilutions of this immense potency, and he asserts that even higher ones may be recognized [?].

† Supposing a substance soluble in alcohol were to be diluted to the 100th potency, then the operator might proceed as follows: 100 vials are placed in a row before him, and in the first are put as many grains of the substance as are directed by the homœopathic pharmacopœia for the first potency. Supposing this is 1 grain; then 1 grain is put in the first vial and 99 drops of alcohol added. The mixture is shaken ten times. This is the *first potency*. One drop of this is now added to vial No 2, together with 99 drops of alcohol, and the whole shaken ten times. This is the *second potency*. One drop of this and 99 drops of alcohol are put in the third vial, which is the *third* potency; and so forth. Prof. Jaeger wishes to convey an idea of the space required to hold the *whole of the first potency* (starting with 1 milligram) diluted to the 100th potency.

‡ According to the French or German terminology, where one billion is: 1,000,000,000,000.

Crystallization-Table of various Chemicals.—It is often desirable to know at which point the evaporation of a solution is to be interrupted in order to procure a good crop of crystals on cooling. The following table has been published by E. FINOT and ARM. BERTRAND, for the more important substances. It is to be understood that the density (which is given according to Baumé's scale) is that of the *warm* solution:

Aluminum sulphate 25.
Alum (amm. or pot.) 20.
Ammonium acetate 14.
" arsenate 50.
" benzoate 5.
" bichromate 28.
" bromide 30.
" chloride 12.
" nitrate 29.
" oxalate 5.
" phosphate 35.
" sulphate 28.
" sulphocyanide 18.
" tartrate 25.
Barium ethylsulphate 43.
" formate 32.
" hyposulphite 24.
" nitrate 18.
" oxide 12.
Bismuth nitrate 70.
Boric acid 6.
Cadmium bromide 65.
Calcium chloride 40.
" ethylsulphate 36.
" lactate 8.
" nitrate 55.
Cobalt chloride 41.
" nitrate 50.
" sulphate 40.
Copper acetate 5.
" ammon.-sulph. 35.
" chloride 45.
" nitrate 55.
" sulphate 30.
Iron-ammon. oxalate 30.
" ammon. sulphate 31.
" sulphate 31.
" tartrate 40.
Lead acetate 42.
" nitrate 50.
Magnesium chloride 35.
" lactate 6.
" nitrate 45.
" sulphate 40.
Manganese chloride 47.
" lactate 8.
" sulphate 44.
Mercury cyanide 20.
Nickel acetate 30.
" ammon. sulphate 18.
" chloride 50.
" sulphate 40.
Oxalic acid 12.
Potass. and sod. tartrate 36.
Potassium arsenate 36.
" benzoate 2.
" bisulphate 35.
" bromide 40.
" chlorate 22.
" chloride 25.
" chromate 38.
" citrate 36.
" ferrocyanide 38.
" iodide 17.
" nitrate 28.
" oxalate 30.
" permanganate 25
" sulphate 15.
" sulphite 25.
" sulphocyanide 35.
" tartrate 48.
Soda 28.
Sodium acetate 22.
" ammon. phosphate 17
" arsenate 36.
" borate 24.
" bromide 55.
" chlorate 43.
" chromate 45.
" citrate 36.
" ethylsulphate 37.
" hyposulphite 24.
" nitrate 40.
" phosphate 20.
" pyrophosphate 18.
" sulphate 30.
" tungstate 45.
Strontium bromide 50.
" chlorate 65.
" chloride 34.
" nitrate 40.
Tin chloride (stannous) 75.
Zinc acetate 20.
" ammon. chloride 43.
" nitrate 55.
" sulphate 45.

—*Journ. d. Ph. et de Chim.*, 1881, 259.

Carbolic Powder.—A dry powder containing a definite quantity of carbolic acid, in which form the latter is most easily used as an antiseptic, is prepared, according to BRUNS, as follows:

60 parts of rosin and 15 parts of stearin are melted together with a gentle heat, and when the mass has somewhat cooled, but is still liquid, 25 parts of carbolic acid are added. The mixture is then mixed with 700 to 800 parts of precipitated carbonate of calcium, and by careful trituration, reduced to a uniform powder. The powder is applied by means of a sprinkling-box, which may be securely covered after use.

The powder may be applied either directly to wounds and sores, so as to produce an antiseptic scab, or it may be used for the extempore preparation of carbolized jute dressing by placing several layers of jute, each separately dusted over with the powder, upon each other.—*Berlin. Klin. Wochenschr.*

Test for the Purity of Olive Oil.—Mr. Michael Conroy describes a new test, which, he says, will detect the presence of 5 per cent of cotton-seed oil or of any other seed oil. The author first reviews the more important tests heretofore proposed, and we will quote his own words:

Lefebre's method consists in taking advantage of the densities of the various oils, and for that purpose he constructed an oleometer, on the stem of which were inscribed the densities of the various fat oils. It is obvious that this method cannot be either delicate or reliable, for the reason that there is not sufficient variation in the densities of fat oils to enable them to be detected in mixtures. Moreover it is even doubtful if the densities of oils from any given source are constant. But granting that they are constant, it would be a very easy matter to make mixtures to suit any required density; hence this method is of little or no use.

Maumené's plan consists in noting the amount of heat evolved on mixing concentrated sulphuric acid with the oils; the drying oils giving off a much greater amount of heat than olive oil under the same circumstances. This is a better method than the preceding one, but it is not sufficiently delicate.

Heydenreich and Penot also propose the use of sulphuric acid; but they distinguish the various oils by the colors produced by the action of the acid. Thus olive oil produces a deep-yellow tint, becoming greenish by degrees; colza oil, a greenish blue; poppy oil, a pale-yellow tint, with dirty gray outline; hemp-seed oil, a deep emerald tint, and linseed oil becomes brownish-red, changing to black-brown. The test is applied by adding 1 drop of strong sulphuric acid to 8 or 10 drops of the oil, placed on a piece of white glass, resting on a sheet of white paper. My experience is, that these reactions do not always occur, as stated, in the genuine oils, and that for the detection of adulteration the method is utterly useless.

The favorite method is, however, that proposed by Poutet. It consists in beating up the oil with one-twelfth of its weigth of solution of nitrate of mercury. The nitrous acid or nitric peroxide evolved from this converts the olein of olive oil into elaidin, causing the oil, if pure, to become solid in a couple of hours, while the drying oils remain liquid. It will be seen from this that olive oil adulterated with any of the drying oils will not set as hard nor as quickly as genuine olive oil, and that the consistence to which the sample sets, and the time occupied in setting, somewhat roughly indicate the amount of adulteration. A modification of this process is to use nitric acid instead of the solution of nitrate of mercury, and I believe that this plan is practised by many oil merchants. The *modus operandi* is to mix ½ fl. drachm of strong nitric acid with about 5 fluid drachms of the oil in a bottle of 1 fl. oz. capacity, to shake up briskly, and put in a cool place for a few hours, when the color and consistence are noted. The results are somewhat similar to those obtained by the nitrate of mercury test. These two tests are, in my opinion, the best published; but they are not satisfactory, as it is extremely difficult to judge of the consistence of the results obtained, and, so far as my experience goes, they are useless for samples containing less than 10 or 15 per cent of seed oils.

The plan which I recommend as more suitable for the purpose is based on an improved method of applying this last test, but instead of being guided by the consistence I am guided by the color produced. The test is applied as follows: Mix thoroughly 1 part of strong nitric acid (sp. gr. 1.42) with 9 parts of the oil to be tested, and pour the mixture into a white porcelain dish capable of holding at least 10 times the quantity. Apply heat gently until the action between the acid and the oil is fairly set up, then remove the source of heat and stir well with a glass rod until the action is over. Pure olive oil thus treated, and allowed to cool, sets into a pale straw-colored hard mass in an hour or two, while cotton-seed and other seed oils assume a deep orange-red color, and do not set like olive oil.

In hot weather it is necessary to artificially cool the sample, so as to promote the setting, but to a practised eye the setting is quite unnecessary, the color being sufficiently distinct without. It will be seen that the delicacy of the test depends upon the great contrast in color exhibited between genuine olive and seed oils, when operated on as described, so that an admixture of 5 per cent of any seed oil with olive oil is readily detected. Another important feature in this, and possessed by no other test, is the accuracy with which the approximate amount of admixture may be ascertained, and to practically show this feature I have on the table [this paper was read at a meeting of the Liverpool Chemists' Association, April 28th, 1881] a sample of genuine olive, and one of cotton-seed, and seven other samples, containing respectively 5, 10, 15, 20, 30, 40, and 50 per cent of cotton-seed oil, which have been treated by this method, and I venture to say that not one here will experience any difficulty in picking out the various samples, the gradation in color being so uniform, and I may also add that it is constant. It therefore follows that if an oil be found to set of a different color to that of a sample of genuine olive the approximate amount of adulteration can be found by making and operating on a few mixtures containing a known percentage of the adulterant. A little experience in working the test will wonderfully assist in determining the percentage of admixture in any sample, but in all cases I would recommend that the test be performed in conjunction with a sample of genuine olive oil. The quantities which I have been in the habit of using are one-half fluid drachm of nitric acid and nine and one-half fluid drachms of oil, and having used the test for about three years I can confidently recommend it as thoroughly reliable and constant when carefully carried out. The heat should be removed as soon as the action has fairly started, and the mixture should be kept well stirred until the action is over.

Should too much heat be applied the action becomes violent and unmanageable, and some of the mixture will spurt out of the dish. This spurting, however, may be prevented by placing a plate or other flat body over the dish. The results obtained, however, are never as good when the action is so violent as to cause spurting.—*Pharm. Journ.*, May 14th.

Handy Method of Applying Nitric Acid as an Escharotic.—A Dr. Speirs, having occasion to destroy a nævus, took a two-ounce vial and breaking off the body close to the neck, inverted the latter over the nævus, pressing the rim of glass firmly down upon the skin. This had the effect of forcing the tumor well up into the neck of the vial; and when the acid was applied by means of a pipette, it acted freely upon the whole surface of the nævus. Before removing the vial-neck, Dr. Speirs carefully mopped out all excess of acid with some cotton-wool on a probe. He then had the satisfaction of seeing a well-defined, circular slough, rather depressed, but with clean-cut edges, as if a punch had been used. The child suffered very little pain, and was easily pacified by being put to the breast. The action of the acid was found to have been entirely confined to the tumor, which was completely obliterated. No cicatricial contraction of the eyelid ensued, and the operation was completely successful.

Remedies which Affect Arterial Tension.—Prof. McCall Anderson, of Glasgow, has found that nitroglycerin acts like nitrite of amyl in relieving excessive arterial tension, with this difference, viz.: that it is slower in producing this effect—five or six minutes elapsing between its administration and the height of its pharmacodynamic action; one minim, carefully increased to fifteen if needed, of a one per cent solution in alcohol being the form employed.

Tonga.—It is said that more than fifty years ago this name was given to a thin extract of *Datura sanguinea*.

Naphthol, a New Remedy for Skin Diseases.—PROF. KAPOSI believes to have found in *naphthol* a very agreeable and efficient substitute for tar. There are two different naphthols known, one of which is designated in chemical language as α-naphthol (alpha-naphthol), crystallizing in colorless prisms and melting at 94° C.; while the other is known as β-naphthol (beta-naphthol), or *isonaphthol*, $C_{10}H_{11}OH$, crystallizes in small rhombic tables and melts at 122° C. It is the latter body which Prof. Kaposi means. This is produced by treating naphthalene with sulphuric acid, whereby two new acids are produced, namely, respectively alpha and beta-naphthalene-sulphonic acids. But if the heat was elevated and continued, the latter acid is alone produced (or nearly so). By fusing this beta-acid with potassa, isonaphthol is produced. It is very easily sublimable, almost insoluble in cold, sparingly soluble in boiling water, but readily soluble in alcohol and ether. In commerce it occurs in large lumps, being much used in dyeing, but is not pure, as it has a violet-brown color. It has a crystalline structure, is friable when pressed, and has a faint odor recalling that of carbolic acid. It is also soluble in oils. In dilute alcohol it is moderately soluble.

A 10-per-cent alcoholic solution, or a 15 per-cent ointment were found to produce only a slight brown tint and moderate desquamation, while an energetic application produced slight swelling with subsequent scaling off of the skin, without the appearance of moisture, however. The ointment does not impart color to linen or bed-clothing, but the alcoholic solution tints rose-red, which may be removed on washing with soap and hot water.

Iridium and Its Uses.—MR. JOHN HOLLAND, of Cincinnati, has succeeded, after many years' experiments, in discovering a ready method of fusing and moulding iridium. He has obtained a patent on May 10th, 1881, from which the following is taken: Iridium is rarely found pure, and only in dust and very small grains or scales. By reason of its non-fusibility by the ordinary processes it is practically useless, except for pointing gold pens, and, as found, there is but a small proportion of it large enough to be used with advantage for even this purpose. I have also used it in its natural state, and, as usually found, alloyed with osmium (iridosmium, which is much softer than pure iridium), for pointing my fountain pens, and have experienced much difficulty in obtaining grains or scales large enough for this purpose, and many of these were imperfect, having cracks or fissures in them that rendered them worthless for drilled fountain pen points. The pieces as obtained are also of irregular shape. A large portion of the metal must, therefore, be wasted, as the dust which results from grinding the grains to the proper shape was of little use.

By my invention I am enabled to fuse the dust as found in its natural state, whether pure or combined with other metals, into a molten mass, and mould the metal into ingots of any desired shape or size. I accomplish this result by the following process: The metal (preferably the dust, which, being of little use in the arts, is comparatively inexpensive) is put into a sand crucible and subjected to a high heat in an ordinary furnace. When it has attained a high temperature I add to the metal about one-fourth its weight of phosphorus. After the addition of the phosphorus, the metal quickly fuses, when it may be poured into moulds of any shape or size. I find it best to have the moulds highly heated, as the metal chills and sets quickly. So soon as the metal is set I place it in a crucible, with chalk or lime, return it into the furnace, and again subject it to a high heat. This eliminates the phosphorus, leaving the metal pure, hard and non-fusible, as in its natural state.

I prepare the metal for my fountain pen points by casting it upon a flat metal plate, the surface of which is crossed by fine ribs resembling lattice or net work. I pour the moulten metal on this plate filling the interstices between, and covering the ribs. The metal is thus cast in a thin sheet or plate having one of its faces grooved the reverse of the ribs upon the mould. Through these grooves the plate is broken into small cubes the proper size, to be drilled and formed into fountain pen points. The same plan may be adopted with advantage in preparing journal bearings for watches, to be used in place of the jewels now commonly used. For pointing my gold pens I mould the metal into the form of wire or small rods. These I break into pieces of a size to make strong substantial nibs. The metal may also be cut by using a copper wheel or disk and diamond dust.

As the metal is exceedingly hard, non-fusible, practically non-corrosive and capable of receiving a high polish, it will now be seen that I have discovered a mode of working it, supplying a great need long felt in many branches of the arts.

The metal is made much tougher by eliminating the phosphorus, but it may be used for many purposes without so doing.

The *Standard*, of Portland, Oregon, states that certain heavy black particles associated with gold in that State, and hitherto supposed to be iron, have been found to be iridium. The *Standard* says that the iridium appears as a black shiny sand in the gold washings, in particles a little coarser than blasting powder, and adds:

"There are portions of this State and the adjoining Territory where this metal may be found in abundance. So that we have in our midst an undeveloped source of wealth that may outshine anything ever before known."

Purifying Alcohol by Nascent Hydrogen.—LAURENT NAUDIN and JOSEPH SCHNEIDER, of Paris, have patented a process of depriving alcohol of bad odor and taste. This is accomplished, according to them, by treating it with hydrogen prepared from metallic zinc or iron and an acid, or prepared by means of sodium or potassium or their amalgams, or by contact of zinc and copper, iron and copper, zinc and lead, iron and lead, zinc and mercury.

Determination of Nicotine in Tobacco.—J. SKALWEIT states that all previous methods for the determination of nicotine in tobacco are unreliable. He recommends the following: Boil 20.25 gm. of powdered tobacco with 10 *cc.* of normal sulphuric acid and 200 *cc.* of absolute alcohol, for two hours, in a flask provided with an upright condenser. Then fill up to the volume of 250 *cc.*, remove 100 *cc.* and distil off most of the alcohol contained in the latter. Add 30 *cc.* of solution of potassa, spec. gr. 1.16, and distil until no more alkaline drops pass into the receiver. Finally determine the amount of nicotine in the distillate by means of decinormal sulphuric acid.—*Repert. anal. Chem.*, 1881, *No.* 11.

New Method of Producing Salicylic Acid Artificially.—(E. F. SMITH.) On heating 1 part of benzoate of copper with 3 parts of water, in a sealed tube or closed vessel, for three hours at a temperature of 180° C. (356° F.) a good deal of cuprous oxide is separated. If now the contents of the tube or vessel are acidulated, the copper removed by hydrosulphuric acid and the liquid distilled, some undecomposed benzoic acid is carried over with the steam. On concentrating the residuary liquid, colorless needles crystallize, which melt at 156° C. (312.8° F.), give a purple-violet reaction with ferric chloride, etc., and are salicylic acid.—*Amer. Chem. Journ.*

Parenchymatous Injections of Acetic Acid into a Mammary Tumor.—DR. AUBRIL has treated a case of what appeared to be a non-ulcerated cancerous breast, measuring six inches in diameter, with sixteen injections, at seven different times and at intervals of three days, with one part of acetic acid to two parts of distilled water. The injections were followed each time by applications of moist heat, and a fortnight later by compresses wet with medicinal prussic acid. Nine months later the tumor had almost disappeared, measuring but $\frac{1}{8}$ of an inch in diameter.—*St. Louis Cour. of Med.* from *Jour. de Méd. et de Chir. Prat.*

Salicylated Starch.—DR. KERSCH states that there is no surer and better remedy against eczema than the following: In eczemas presenting scabs, grind and scales, the latter are washed off with potash-soap and a warm two-per-cent solution of carbolic acid. In case the affected surface is large, it is treated in portions at a time. The washed spot is then dried with antiseptic absorbent cotton, sponged off with a two-per-cent solution of salicylic acid in very strong alcohol, and finally densely dusted over with salicylated starch.

The latter is prepared by stirring pure starch in small quantities at a time, under brisk agitation, into a two to three-per-cent solution of salicylic acid in alcohol. The quantity of the latter must be such that, when all the starch is added, and has settled, the supernatant liquid is at least four inches in depth. The latter is poured off, the residue gently pressed in muslin, dried, powdered, and again dried at 80° C. (176° F.). It has been shown by experiment that no mechanical mixing of starch and salicylic acid can produce such an intimate and uniform mixture as the above process.—*Berlin. klin. Wochenschr.*

On the Silver in Commercial Bismuth.—R. SCHNEIDER drew attention to the frequent presence of silver in commercial bismuth already a long time ago. This fact has since been confirmed by others, and recent investigations have shown considerable percentages. Two Bolivian samples of bismuth yielded respectively:

Bismuth,	99.053	99.069
Silver,	0.083	0.621
Copper,	0.258	0.156
Antimony,	0.559	
Tellurium,		0.140
Gold,		trace
	99.953%	99.986%

The bismuth cakes contained at the surface small elevated warts, which adhered only loosely. These were found to contain only bismuth and silver, while copper and tellurium were retained in that portion of the cake which congealed first.

Saxonian bismuth has the following composition:

I.		II.	
Bismuth,	99.390	Bismuth,	99.830
Silver,	0.188	Silver,	0.075
Copper,	0.090	Copper,	0.040
Arsenic,	0.255	Iron,	0.026
		Lead,	trace
	99.923%		99.971%

In preparing subnitrate of bismuth, if the neutral salt is first crystallized out, no contamination with silver need be feared, as this metal remains in the mother liquid. But if the solution is at once used for precipitation, the resulting salt will contain silver.

Bismuth salts entirely free from silver are not affected by light.

It has been suggested to use the process of Pattinson for argentiferous lead, to remove the silver from the bismuth.—*Journ. Pract. Chem.*

New Reagent for Potassium.—According to L. L. DE KONINCK, a reagent for potassium, much more sensitive than platinic chloride, is obtained by adding to a solution of nitrate of sodium containing about ten per cent of the salt a little cobaltous chloride and acetic acid. This reagent produces, in a solution containing one per cent of chloride of potassium, immediately a yellow precipitate. The latter is still obtained when the solution is diluted to 1 in 1,000, but at a dilution of 1 in 2,000, no precipitate makes its appearance.

Ammonium salts produce a similar, but less sensitive reaction. Salts of magnesium, calcium, barium, strontium, iron, aluminum and zinc are not precipitated by this reagent. The reaction is, in the main, nothing else than an inversion of the well-known reaction for cobalt by nitrite of potassium.—*Zeitsch. f. Anal. Chem.*, 1881, 390.

Masking the Odor of Iodoform.—MOSETIG recommends the *Tonka bean* for this purpose, which owes its peculiar pleasant odor to the presence of cumarine. It is said that *one* bean, whole or split, when added to 150–200 gm. (5 to 7 oz.) of iodoform, is sufficient to permanently deodorize the latter. For small amounts only a drop of the alcoholic or ethereal tincture of tonka is required. The antiseptic effect of iodoform is thereby not in the least interfered with.—*Wien. Med. Bl.* and *Pharm. Centralh.*

NOTE.—Other means of deodorizing iodoform will be found mentioned in our July number, page 206.—ED. NEW REM.

Hydrofluoric Acid in Goitre.—Hydrofluoric acid seems to be attracting attention in medical circles as a remedy for goitre. Dr. E. Woakes describes in the *Lancet* (pp. 459, 497, 537) a number of cases in which this treatment has been successful. The dose prescribed at first is usually 15 minims twice a day, but this is increased in some cases to 30, 40, or even 50 minims, two drachms being the limit of toleration. In Dr. Woakes' hands the remedy has proved effectual in about 87 per cent of the cases, although the treatment has taken a lengthened period; varying from six weeks to several months. The acid used in the treatment was prepared by Mr. Bullock. It contains 30 *per cent* of gaseous acid, and for internal administration was diluted by 200 per cent of water, in which state, Dr. Woakes says, it can be kept in glass bottles for dispensing and is tolerated by the stomach. The stronger 30 per cent solution must be kept in a gutta percha bottle fitted with a cork and not with a gutta percha stopper, as the latter admits air, and the acid is thereby deteriorated.

Dr. Woakes was led to try the acid from the consideration that fluorine belongs to the same group as iodine, which has already been found of use in that disease, and that there appears to be a physiological relationship between drugs belonging to natural groups, whether in the domain of botany or chemistry.

It is not a little singular, however, that a remedy which must be abundant in Derbyshire, where the disease is so common as to have received the popular name of the Derbyshire neck, should be found to act almost as a specific for the disease, and seems to point out that fluorine has an opposite action in large and minute doses. As long ago as 1866, M. Maumené (*Med. Times and Gaz.*, May 5th, 1866), as the result of experiments, attributed the cause of goitre to the presence of fluorides in drinking water, and indeed produced goitre in a dog by a course of five months' treatment with fluoride of potassium. A suggestion of the possible usefulness of hydrofluoric acid as a homœopathic remedy for goitre occurs in Hughes' Pharmacology (part i., p. 26) published in 1875.

Pilocarpine for Fetid Feet.—M. ARMAINGAUD, of Bordeaux, in a communcatiion to the *Académie de Médecine*, states that repeated hypodermic injections of pilocarpine will cure the troublesome fetid perspiration of the feet without any injurious effect upon the system. This it appears to do by setting up a hypersecretion in the salivary glands. Jaborandi, which produces a general sudorific action, does not give the same beneficial results.—*The Lancet.*

"Ethereal" Castor Oil.—M. PRODAM, a pharmacist of Fiume (Austria), has obtained from the castor seeds, by treating them with ether, not only the oil, which would not be purgative by itself unless it contained some of the active principle known as *ricinine*, but his solution also contains this principle in larger proportion. He is thus able to get the purgative effect of the oil by a smaller dose, and without the disagreeable taste of the ordinary oil. His preparation has further the advantage of being miscible, in any proportion, with water, coffee, or milk. *Chem. and Drugg.*

A New Product from Birch Bark.—We learn from *Design and Work* that a French inventor has recently invented a method of improving India-rubber and gutta-percha by the addition of a distillate of birch bark. By distilling the outer layers of the bark he obtains a dense black gummy matter which possesses the properties of ordinary gutta-percha, with the additional quality of resisting both the action of air and the strongest corrosive acids. He claims also that, by adding a small proportion of the birch-bark gum to gutta-percha or to India-rubber (one-twentieth part will suffice), the durability of the rubber or gutta-percha will be greatly increased, the new mixture not being acted upon by the air or by acids.

Linaloe Oil.—Under the commercial name of "essence de linaloës," an essential oil has recently been introduced into Europe from French Guiana, for perfumery purposes, which, notwithstanding the similarity in name, is a different product from the linaloe oil imported from Mexico. The latter is derived from the "citron wood" of Mexico, probably a species of *Amyris*. The Guiana product is, on the other hand, obtained from the wood of the "licari kanali," the "female rose" or "white cedar" of the French colony, which has been referred to a species of *Acrodiclidium*, a Lauraceous genus. According to M. Morin, the oil of licari, as met with in commerce, is a limpid, slightly colored liquid, lighter than water, possessing an agreeable aromatic odor, recalling the smell of the rose and citron together, and burning with a smoky flame. When freed from a small quantity of water that it usually contains, it has a density of 0.868 at 15° C., boils regularly at 198° C., with a pressure of 775 mm., and has a levogyre action on polarized light. Further, it is soluble in alcohol, ether, or glycerin. A chemical examination shows that its elementary composition, like that of oil of cajuput, is identical with the composition of Borneo camphor ($C_{10}H_{18}O$), and that it can yield by dehydration a carbide of hydrogen having the formula $C_{10}H_{16}$.—*Phar. Journal.*

Nitre Tablets for Asthma and Insomnia.—Dr. Wm. Murrell, in the *British Medical Journal*, writes: There can be no question as to the value of fuming inhalations in the treatment of asthma. The ordinary nitre paper often fails, because it is not strong enough. For some time past I have been in the habit of using very thick and strong nitre-papers, which may be called "nitre-tablets." They contain both chlorate and nitrate or potash. Each consists of six pieces of white blotting-paper, about six inches square, and they are made by dipping them into a hot saturated solution of nitre and chlorate of potash. Before the pieces are quite dry, they may be sprinkled with Friar's balsam, spirit of camphor, tincture of sumbul, or some aromatic. The nitre-paper so prepared is as thick as cardboard, each piece consisting of six pieces of blotting-paper, closely adherent, and covered all over with crystals of saltpetre and chlorate of potash. The door and windows having been closed, the tablet is placed on a fire-shovel or piece of metal of some kind, and folded down the middle, so as to make it like a tent or the cover of a book. When lighted at each end it burns very quickly, throwing out a flame often four or five inches long, and giving rise to dense volumes of smoke. The asthmatic patient almost immediately obtains relief, and drops off into a quiet slumber, from which he awakes refreshed. These tablets often succeed when the ordinary nitre-papers do no good. They nearly always induce sleep, and I have used them with success in cases of insomnia when most of the ordinary remedies have failed. Large pastils composed of equal parts of nitre and lycopodium are also useful in asthma.—*Chem. and Drug.*

Ammoniated Copper as a Remedy for Obstinate Neuralgias.—Dr. Fereol says that in a certain proportion of cases of severe or persistent neuralgias ammoniated copper will prove remedially valuable. The particular cases which may be benefited he is not able to distinguish in advance by any diagnostic signs. In administering it, he has found that a solution has the inconvenience of being of a disagreeable taste; to some absolutely repugnant. He has tried to remedy this by giving it in powder, mixed with the subnitrate of bismuth, and inclosed in Limousin's capsules.

Ammoniated copper ..... 2 ctgms. ($\frac{3}{10}$ grain).
Subnitrate of bismuth.....25 ctgms. ($3\frac{3}{4}$ grains).
For one capsule.

Take five of these per diem, two with each of the two principal meals, and one between the two meals, after which drink a small glass of milk. This can be increased to ten capsules per diem, taking care always to take them while eating, or to take the milk afterwards, to prevent the direct action of the medicine on the stomach. This mode of giving it has the advantage of causing less nausea and disgust, and of avoiding especially the furred condition of the tongue and persistent taste of copper. Generally the patient does not perceive that he has taken it.

Sometimes, however, it causes vomiting, and has to be stopped; but this is not ordinary. It is generally well tolerated, providing it has been taken with the meals or with milk, and it has been thus continued for three weeks without inconvenience.—*St. Louis Cour. of Med.* from *Bull. de la Soc. de Thérap.*

Spergula media is spoken of as a remedy in gonorrhœal cystitis.—Dr. Gimeno in *La Cronica Medica.*

Conium in Acute Mania.—Dr. J. G. Kiernan, of Chicago, has found the various preparations of the Pharmacopœia of little effect, but a fluid extract made by a well-known manufacturer, given in a dose of 1.60 grams to a large, powerful man, suffering with violent and incoherent speech and movements, but without delusions or hallucination, the dose being repeated at the end of an hour, caused first dizziness and then quieted the maniacal excitement for about five hours. 3.20 grams, given at night, rendered him quieter than he had been for weeks, even during the employment of chloral, hyoscyamus, or morphine.

Other cases of a character generally similar are quoted, and, according to the writer, show that conium quiets the motor excitement, which, if allowed to persist, exhausts the strength and leads to death of the patient. He submits the following conclusions:

First, that conium is of marked benefit in acute mania. Second, that it may apparently cause the disappearance of delusions and possess an apparently hypnotic action, but that both these circumstances are due to its removing the motor excitability which is the source of the delusive ideas and the cause of the patient's insomnia. Third, that in accordance with Bouchefontaine's opinion, the action of the drug is on the nervous centres directly. Fourth, that while conium has no direct hypnotic effects itself, it promotes the hypnotic action of other drugs by removing the motor excitement which interferes with slumber. Fifth, that it may be given in larger doses than it is generally administered in. Sixth, that its chief beneficial action in acute mania is derived from its prevention of extreme exhaustion arising from increased motor excitement. Finally, the writer says that despite the cant now so prevalent among certain alienists about the "chemical restraint of the brain cell," he does not conceive it to be the physician's duty to permit the patient to die of exhaustion from the psychoses.

Crystalline Compound of Strychnine and Iodoform.—(Lextrait.) If a cold and concentrated solution of iodoform in alcohol is saturated with strychnine, the liquid rapidly loses its color and gradually deposits long prismatic needles, which are a compound of iodoform and strychnine of the composition $(C_{21}H_{22}N_2O_2)_3CHI_3$. This is very easily decomposed, either by exposure to heat or by exposure to air. The crystals are insoluble in water, soluble in ether and chloroform with gradual decomposition, and soluble in about 300 parts of 98% alcohol.—*Monit. Scient.*

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Watson (Sereno). Botany of California. Vol. 2, 4to, Cambridge, Mass.

Imitation Amber.—Considerable quantities of beautiful objects of artificial amber are now being produced in Vienna. The substance employed in its manufacture is chiefly colophony or resin, obtained by decomposition of turpentine, though several other ingredients are used to give it the requisite qualities. The imitation is said to be perfect, and the production has even the electric properties of true amber. Ingenious manufacturers have even introduced into the substance foreign bodies, insects, etc., to make the similarity more striking. Natural amber requires a temperature of 285° to 287° C. to fuse it, while the imitation becomes liquid at a much lower temperature.

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 931.—**To Renovate Old Rubber Goods** (A. P.).

It would be hardly possible to suggest a method by which any and all rubber goods which have deteriorated by long lying around unused, could be renovated. In many cases it will no doubt be entirely impossible. But the following method which has been found highly effective for restoring the usefulness of *vulcanized rubber corks* may possibly suggest to you a way out of the difficulty:

Old and hard rubber stoppers, even if full of cracks externally, are digested at a temperature of 40–50° C. (104–122° F.) for about 10 days, with a 5-per-cent solution of caustic soda, which must be repeatedly renewed during that time. They are then washed with water, and the softened exterior is scraped with a blunt knife until nothing further can be scraped off (the layer may be up to 2 *mm.* in thickness). The stoppers, which are now entirely soft and elastic, are washed in warm water to remove any adhering soda, and are then ready for use again. It may be necessary to level off the top and bottom by taking off thin slices with a sharp knife dipped in soap-liniment.

No. 932.—**Gelatin-Coated Pills** (Several inquirers).

In answer to several inquiries lately received, whether retail pharmacists, who have heretofore themselves employed some process or another in coating pills with gelatin, would be liable to suit and damages in consequence of the recent decision of United States Circuit Judge Blatchford in favor of Messrs. McKesson & Robbins, plaintiffs, in which decision the validity of the patents claimed by McKesson & Robbins were sustained, we desire to say that we must decline giving any opinions whatever, whether one or another process does or does not infringe these patents. This is a question which can only be settled by an appeal to and a decision of the *conscience* of the person interested. Besides, the only competent persons to make a *correct* reply would be McKesson & Robbins themselves. All we can say is this, that this firm has issued a special notice, in which they say: "Our attention has been called to the fact that machines for coating pills with gelatin, which we consider infringements on our machinery, have been offered to the trade. We desire to caution all persons against purchasing, selling or using the same, as we intend to bring suit against all infringers."

No. 933.—**Unguentum Zinci Oxidi** (A. J. S.)

If you desire to use cosmoline in place of lard, it is scarcely necessary to have a formula given you, as you may use the same proportions of cosmoline as formerly of lard. In summer you may add a little yellow wax to your cosmoline, if it should be too soft. The cosmoline or vaseline may be benzoated which will cause it to keep much longer unaltered than otherwise. But this must be done while the cosmoline is perfectly fresh. It is not quite true, what is generally supposed, that vaseline or

cosmoline *cannot* deteriorate. In the course of time, and when exposed to air, they will acquire a peculiar faint odor, which is pronounced as "rancid" by those who have discriminative olfactory organs. A good formula for zinc ointment would be the following:

Oxide of zinc	3 parts.
Tincture of benzoin	1 part.
Cosmoline or vaseline	15 parts.

Melt the cosmoline or vaseline; then add the tincture of benzoin and heat until the alcohol has been completely dissipated. When the liquid begins to cool, incorporate the oxide of zinc in fine powder (sifted) and stir the ointment until cold. Cooling may be hastened by setting the mortar into cold water.

No. 934.—**Cement for Glass** (Subscriber).

One of the best cements for glass is gelatin rendered insoluble by means of bichromate of potassium and exposure to light. One part of a very pure, and colorless gelatin is dissolved in 15 parts of water in which 3 parts of bichromate of potassium had first been dissolved. This must be done in a dark place, or at least in a room illuminated only by a weak candle or gas-light. And the mixture itself must be carefully kept from sun-light, best in a black bottle in the dark room. To cement fractured glass fragments together, the edges are first thoroughly cleaned, then slightly warmed, and coated with a *very thin* coating of the cement, in the dark room. The pieces are then pressed together and, if at all possible, kept under pressure (by tying with cord, wire, etc.), and then exposed to direct sun-light. If the edges have been thoroughly adjusted and the cement was applied thin, even hot water will not separate the pieces. Opaque objects are not so thoroughly cemented together by this mixture, since the rays of the sun cannot strike the fractured edge throughout its whole extent.

No. 935.—**Prescription** (E. L.)

We have received the following:—"Dear Sir: Please give your opinion on the following prescription, which is an exact copy:

℞ Sulph. quiniæ,
Ferri sulph. āā ʒ ss.
Strychniæ sulph. gr. i.
Syrupi ʒ iv. M.

By mixing it *secundum artem* I get a milky mixture. The bearer had it filled up before, and was handed a clear mixture, which was produced, I am sure, by the addition of sulphuric acid, q. s. to dissolve the quinine. Who was right in this case?"

Undoubtedly you were right and the other was wrong. It is not the province of the pharmacist to try and improve on the physician's prescription, particularly if no incompatibility or excessive dose is the point in question, and even in the latter case he should endeavor to consult the writer. Physicians will prescribe sulphate of quinine in certain cases in solution, in other cases they prefer to have it in suspension so that it may not appear to taste so bitter, and this must be supposed to have been the intention of the prescriber of the above recipe. All you had to make sure of was that the sulphate of strychnia was first completely *dissolved* in the syrup, for this should *never* be given in suspension, as it may gradually settle and all be given in *one* dose. Then in the clear solution should be dissolved the sulphate of iron, and finally the sulphate of quinine should be triturated or shaken with the mixture.

The same correspondent wants to know whether the incompatibilities in the following prescription will counteract the medicinal effects:

℞ Sodii bicarbonatis,
Acidi tartarici,
Bismuthi subnitratis,
Sacchari albi. āā ʒ i.

We think not; and we can scarcely call this an incompatible mixture, as it is evidently intended to be given as an effervescing drink by a definite quantity being thrown into water and drank while effervescing.

No. 936.—**Tripolith** (M.D.)

In continuation of our answer on page 126 of the June number—to which the communication of Dr. Heuel on page 208 of the July number is a supplement—we can now add the following:

The analyses which have so far been published appear not to be correct, at least so far as to hit upon the actual materials mixed together. The Brothers von Schenk, of Heidelberg, who manufacture the article, informed the editor of the *Pharmaceutische Zeitung* to this effect, and sent him a copy of the original patent (Germ. Pat. 13,613), in which it says:

Process for preparing a mass intended as a substitute for gypsum, consisting of a mixture of finely powdered natural gypsum, silicate of aluminum, coke and iron-scale, heated together for some time in a boiler and then rapidly cooled.

No. 937.—**Hay-Fever** (Apo.)

In addition to various remedies heretofore reported in these columns, as having been found efficacious, we bring the two following (after Hager):

1. *Sendner's Mixture.*

Quinidiæ sulphat.	gm.	2.0	= gr. 30
Potassii iodidi	"	2.0	" 30
" bromidi	"	2.0	" 30
Solve in			
Infusi caffeæ tost	"	150.0	fl. ʒ 5
Tum adde			
Acidi hydrochlor	"	1.0	♏ 12
Syrupi	"	50.0	fl. ʒ 1½

Dose: A tablespoonful every 3 hours, followed by a drink of water.

2. *Weber's Mixture.*

Extracti hyoscyami	gm.	0.75	= gr. 12
Potassii iodidi	"	4.00	ʒ 1
" bicarbonatis	"	8.00	ʒ 2
Extracti glycyrrhizæ	"	15.00	ʒ ½
Solve in			
Aquæ anisi	"	150.00	fl. ʒ 5

Dose: Half a tablespoonful every 3 or 4 hours.

No. 938.—**Iodoformed Lint** (J. S.)

This may be prepared after Hager's directions for making "Iodoformed Charpie," and is preceded by the preparation of a solution of iodoform, as follows:

Iodoform	4 parts.
Ether	20 "
Oil of fennel	1 "
Dilute alcohol	40 "
Glycerin	10 "

Dissolve the iodoform in the ether previously mixed with the oil of fennel and dilute alcohol. Then add the glycerin.

Take of

Lint	10 parts.
Solution of iodoform	15 "

Incorporate the solution with the lint by triturating and kneading in a mortar.

Since iodoform is volatile even at ordinary temperature, it is not advisable to prepare iodoform-dressings for stock, but only at the time when called for. It must be prepared distant from lights or fire; and when made should be left exposed to the air, picked apart, for about 15 minutes, so that the ether, etc., may evaporate.

No. 939.—**Purple Hectograph Ink** (W. C. K.).

Once more we will repeat the formula for preparing this ink, as it seems to be a standing query:

Dissolve 1 part of methyl-violet in 8 parts of water and add 1 part of glycerin. Digest the whole for about one hour; then allow it to cool, and add ¼ part of alcohol. We have lately found that the alcohol may be omitted and the proportions be made: methyl-violet 1, water 7, glycerin 2, which renders the ink less liable to sink in the paper.

No. 940.—**Lime-Juice and Glycerin** (G. S. W.).

The following formula is stated to be used in making this compound. You will find neither lime-juice nor glycerin among the ingredients. Nevertheless, there is *lime*, some oil of lemon to convey the idea of lime-juice, and the glycerin is developed by the saponificat on o the oils with lime-water:

Almond oil	240 parts.
Olive oil	240 "
Lime-water	240 "
Sugar	20 "
Oil of lemon	5 "
Oil of lavender	2 "

No. 941.—**To Cover the Taste of Strychnia, etc.** (J. P.)

This correspondent writes: "Will you please tell me, if there anything that can be used to take away the bitter ta e of *strychnine?* I want to use some in a rat-poison, and would like to destroy the bitter taste without destroying the effectiveness of the drug. Also, if carbonate of baryta is a surer poison than arsenic and stronger?"

The only suggestion which occurs to us as being likely to accomplish the desired result is, to convert the strychnine into as insoluble a salt as possible. Such a one would be the *tannate*. Tannic acid is frequently employed as an antidote for poisonous alkaloids, because it forms almost insoluble compounds with them. These "insoluble" compounds, however, if left in the stomach, would soon dissolve and be absorbed; hence they must be removed by an emetic. You will therefore understand that the apparent insolubility of the tannate of an alkaloid does not prove its complete inertness. On the contrary, the compound is active enough, but requires time. We would suggest, therefore, that you dissolve the strychnine in water with the aid of dilute sulphuric acid (common oil of vitriol, diluted, will do for your purpose); then to add a cold decoction of nut-galls, until no more precipitate is thrown down. This is to be washed, on a strainer, with cold water, and finally dried. You may then mix it with the other ingredients.

Carbonate of barium (carb. of baryta) is poisonous, but arsenic (arsenious acid) is considered to be much more so.

No. 942.—**Potato-Bugs** (W.).

We do not know exactly how the item "potato-bugs" has got into our price-list; but it may have strayed there from our memoranda, as it is an article of limited demand. It has been employed, in homœopathic practice, in form of tincture prepared by crushing the live animals and macerating them with 5 parts of alcohol. Those who wish to see what the pretended effect of this preparation is said to be, may consult the transactions of the Homœop. Med. Soc. of the State of New York, VII., p. 159.

No. 943.—**Naphtha Medicinale** (M. M.).

Referring to Query 913 on page 222 of the July number, our correspondent says: "Is there not reason to suppose Dr. Bennet meant *spiritus pyroxylicus?* See the medical properties of wood alcohol in the U. S. Dispensatory.

It may be so; we have tried to ascertain, but even the American editor of Dr. B.'s work could not give the desired information.

No. 944.—**Marking Ink for Linen, Cotton, etc.** (Phar.).

Red marks may be produced by dissolving 1 part of platinic chloride (platinum tetrachloride; formerly named "bichloride of platinum," commonly used as a reagent) in 6 part of water, and to write with this solution upon the fabrics which must have been previously sized with a thin solution of gelatin or dextrin, then dried and ironed. After the writing has become dry a dilute solution of iodide of potassium is brushed over the marks.

Purple marks may be produced upon linen by first saturating the latter with a solution of 10 parts of crystallized carbonate of sodium, and 10 parts of gum arabic in 50 parts of water, drying and ironing. It is then marked with a solution of 1 part of platinic chloride in 15 parts of water, and when completely dry, the written marks are carefully and exactly traced over with a goose-quill pen dipped in a solution of 1.5 parts of crystallized stannous chloride (protochloride of tin) in 15 parts of water.

No. 945.—**Sykes' and Gendar's Hydrometers** (D. C.).

This correspondent writes: "I have been recently taking the strengths of several samples of French spirits at *proof strength*. I use a Sykes' hydrometer, a beautiful instrument and new. Gendar's hydrometer was also used in my presence, taking the strength of the same samples of spirits, and while Gendar's always showed the proof strength, Sykes' showed a difference of from 10 to 12° *under-proof*. The English proof-spirit is defined by law to be that which has "a specific gravity 0.923, at the temperature of 51° Fahr.—water being assumed as unity at the temperature of 60° Fahr." American proof-spirit is defined in a book before me, as "having a specific gravity of 0.933 or a mixture of equal quantities of absolute alcohol at the specific gravity of 0.793, and distilled water, at 60° Fah." What should therefore be the difference of the strengths between proof on Gendar's instrument and under-proof on Sykes's, when the specified gravities of both are given?"

The United States Government recognizes, officially, a set of hydrometers (5 spindles) showing "proof-spirit, U. S.," that is, one-half alcohol by volume. Tralles' hydrometer was at one time used in levying customs duties on imported liquors, but is not now used. Gendar's hydrometer has never been recognized officially, but has been used by distillers and the trade for the assay of domestic (U. S.) liquors. It indicates degrees above and below American proof-spirits. Sykes' hydrometer indicates degrees above and below British proof-spirits. Now, while you correctly state the definitions of the two hydrometers, their scales can only be compared when at the *same* temperature. As the temperature of 60° F. is more easily attained and controlled than that of 51° F., it will be best to compare both scales at the former temperature. And at 60° F. British proof-spirit has a spec. gr. of 0.9198. The two scales then may be thus compared:

	Temp.	Spec. Grav.	Vol. % Alcohol.	Wt. % Alcohol
Gendar's scale (Amer.)	60° F.	0.9335	50.57	43.00
Sykes' scale (Brit.)	60° F.	0.9198	57.06	49.24

Now British proof-spirit, as will be seen already from the two specific gravities, *contains more alcohol* than the American. Let us start with the stronger of these two spirits and test both with a Sykes' hydrometer. A correct British proof-spirit will show on that instrument 100 per cent (of proof-spirit). On immersing the same instrument into a weaker spirit, it will naturally indicates a lesser quantity of proof-spirit than 100 per cent. Now American proof-spirit contains 50.57 per cent by volume of alcohol, which corresponds to 88.62 per cent of British proof-spirit, by measure ($57.06 : 100 = 50.57 : x$; and $x = 88.62$), and Sykes' hydrometer will indicate this very percentage. You see therefore that if Gendar's hydrometer in American proof-spirits shows "proof," Sykes' hydrometer, in the same liquid, shows 11.38 per cent under-proof.

Colors for Show Bottles.—A very stable red is obtained by dissolving 1 drachm of carbonate of cobalt in pure hydrochloric acid, then adding enough carbonate of ammonia to redissolve the precipitate first formed, and diluting to 10 or 12 pints. Another red is made by adding sulphocyanide of potassium or ammonia to a very dilute solution of perchloride of iron. Copper dissolved in aqua regia, and diluted sufficiently, yields a fine green. The addition of an excess of ammonia to a very dilute solution of sulphate of copper produces a blue. For yellow, a dilute solution of picric acid may be used. Aniline colors do not resist the action of light well enough.—*Journal of Chemistry.*

FORMULAS.

Preparation of Saccharated Iron.—J. FÖRSTER, of Rostock, after alluding to the defects in the formulæ as yet proposed or in vogue for preparing saccharated iron, proposes the following as being the simplest and cheapest:—1 kilogram of solution of iron perchloride, of 15 per cent, is mixed in a spacious porcelain or stoneware vessel with ½ kilo. of sugar previously dissolved in water, to which mixture 1 kilo. 200 g. of soda crystals, dissolved in double that quantity of water, are then added. The hydrated iron oxide thereby formed dissolves again upon stirring so long as an excess of iron chloride is present, until upon the addition of the remainder of the soda solution the mixture consolidates to a thick pulp. The whole is freed as completely as possible from carbonic acid by stirring, and ½ kilo. of caustic soda lye of a specific gravity of 1.33 added. After stirring for some time, a clear reddish-brown liquid is formed; this is made up to 10 kilos. by adding distilled water, and the saccharated iron precipitated by passing a lively stream of carbonic acid through the mixture.

The best kind of developer for the carbonic acid the author finds to consist of a wide-mouthed bottle with a long safety funnel and wash bottle, the materials for producing the gas being magnesite, pieces of marble or chalk, and common hydrochloric acid. The precipitation is best carried out in a tall cylinder, the end of the developing tube being bound round with a piece of calico so as to cause the gas to rise in small bubbles.

The precipitation is complete in five or ten minutes, whereupon the mixture is diluted to 15 kilos., and the whole placed upon a sack-filter covered with wet calico. After draining a night, the precipitate is twice stirred up with 15 kilos. of distilled water, and when this has drained off, the precipitate is mixed with 1 kilo. 200 g. of powdered sugar, and the whole evaporated down in a porcelain or tin vessel under frequent stirring. When the mixture has attained the consistency of syrup, the sugar dissolves the iron again; the mixture is then completely dried, either over a steam bath or in thin layers on glass plates in a drying-box. Thus dried, saccharated iron is an inelegant brown powder, and is spread out in thin layers on paper and exposed for some days to the action of the air, whereby its color changes into a uniform light brown. The mass is then again dried, and according to the percentage of iron required in the preparation is mixed with more or less sugar.

The saccharated iron thus prepared has a clean, sweet taste, and mixed with water yields a light reddish-brown neutral solution.—*Arch. d. Pharm.* and *Chem. and Drugg.*

Preparation of Koumys.—ANDREA PIGATTI gives the following method for preparing koumys from cow's milk:

Cow's milk	1,000 parts.
Water	500 "
Yeast	20 "
Honey	20 "
Alcohol	30 "
Wheat flour	15 "
Millet flour	5 "

Mix the milk with the water. Mix the flours with the diluted milk. Incorporate the yeast with the honey by trituration in a mortar, gradually adding the alcohol. Then mix all the ingredients together in a strong bottle, taking care that a considerable empty space remains, and secure the stopper, which must be air-tight, with a string. In order that fermentation may proceed regularly, care is to be taken that the temperature is kept up between 25° and 30° C. (77°–86° F.) for 24 hours in summer, and for 48 hours in winter, agitating 2 or 3 times during that period. The liquid is then strained through muslin and poured into strong bottles which must be securely stoppered. They are left for 24 hours in a temperature of 25° C. (77° F.), being frequently shaken, and are then transferred to a cool place. After a few days the liquid divides into two layers, which may readily be united by agitation. Pigatti asserts that koumys thus prepared keeps for several months unaltered and of a grateful flavor.—*L'Orosi*, 1881, 160.

Aromatic Cachous.—

Take of:

Extract of liquorice root	100 parts.
Dissolve in warm water	100 "
Add powdered catechu	30 "
Gum arabic	15 "

Evaporate in a warm bath to an extract, adding

Cascarilla bark	2 parts.
Vegetable charcoal	2 "
Orris root	2 "
Mastic	2 "

And when nearly cold add

Peppermint oil	2 "
Tincture of ambergris	10 drops.
Tincture of musk	10 "

Cut the mass into pieces of a suitable size and shape. These will, of course, be black or dark-colored. It has recently been noticed that thymol has a powerful deodorizing effect on tobacco smoke.—*Canad. Pharm. Journ.*

To Drive away Mosquitoes.—1. L. Münch recommends to burn tapers or pastils made from

Charcoal, powd	500 parts.
Nitrate of potassium	60 "
Carbolic acid	40 "
Insect powder	250 "
Tragacanth, powd	q. s.

To be made into a suitable mass and to be formed into pastils of about 90 grains each.—*Pharm. Zeit.*, No. 48.

2. Another method is recommended in the same journal, namely, to wash the face, hands, etc., with water to which some tinctura pyrethri, or some of the following mixture has been added:

Carbolic acid	5 parts.
Oil of peppermint	2 "
Tincture of quillaya (1 to 5 alcohol)	25 "
Water	500 "

Removal of Stains of Aniline Ink.—Red aniline ink stains may be removed by moistening the spot with strong alcohol acidulated with acetic acid. Unless the stain is produced by eosine, it disappears without difficulty. Paper is hardly affected by the process; still it is always advisable to make a blank experiment first.—*Pol. Notizbl.*, 1881, 64.

To Remove Ink-Stains.—An article in the *Journal de Pharmacie d'Anvers* recommends to use for this purpose the pyrophosphate of sodium, which does not destroy cellulose, and yields colorless compounds with ferric oxide. Before treating the spot with this salt, it is recommended to let a few drops of tallow, from a candle, fall upon the spot, and then to wash in a solution of the pyrophosphate until tallow and ink-spot have disappeared. If necessary, the operation is to be repeated.

Bronzing for Brass.—The articles, which must be free from grease and polished, are first immersed, for ½ minute, in a cold solution of 10 gm. of potassium permanganate, 50 gm. of sulphate of iron (ferrous) and 5 gm. of hydrochloric acid in 1 liter of water. They are then washed off and dried in fine, soft saw-dust. If the color has become too dark, or if a more reddish-brown color is required, the objects are immersed, immediately after they have been taken out of the liquid, for about 1 minute into a warm (60° C. = 140° F.) solution of 10 gm. chromic acid, 10 gm. chloric acid, 10 gm. potassium permanganate and 50 gm. sulphate of iron in 1 liter of water, and treated as above. By using the second liquid alone, a brighter, dark-yellow, or red-brown color is produced. The objects may afterwards be heated in a drying oven, whereby the color is considerably improved.—*D. Metallarbeiter.*

ITEMS.

Illinois Pharmaceutical Association.—We are informed by the Chairman of the Executive Committee of the Association, Mr. Adolf G. Vogeler, that the officers have decided to change the day of the annual meeting from Nov. 8th to the *third Tuesday* in October (the 18th). This change was necessitated, first because the Western Wholesale Druggists' Association had already agreed to meet on the first-mentioned date; secondly, no satisfactory arrangements could be made for an exhibition hall. Besides, it has been ascertained that most members will be pleased with the change of date.

The Illinois Pharmacy Board.—The Governor has recently appointed as the Illinois Board of Pharmacy George Buck, of Chicago; Herman Schroeder, of Quincy; J. E. Espey, of Bloomington; C. W. Day, of Allendale; Frank Fleury, of Springfield.

Awards to American Exhibitors at the Melbourne Exhibition.—From the list of awards at the recent international exhibition we extract the following as being of especial interest to our readers:

First Degree of Merit.—MacKinnon Pen Co., New York City, Fountain Pen; New Haven Folding Chair Co., New Haven, Ct., Invalid Chairs; Pacific Rubber Paint Co., San Francisco, Cal., Rubber Paint, Ready Mixed; Peabody, H. W. & Co., Boston, Mass., Kerosene oil; Pease, F. S., Buffalo, N. Y., Minerals oils; Philadelphia College of Pharmacy, Philadelphia, Pa., Dried medicinal herbs; Puzzoline Company, Boston, Mass., Liquid mineral glue and cement and mucilage; Schieffelin, W. H. & Co., New York City, Pills and fluid extracts; Seabury & Johnson, New York City, Medicinal plasters; Valentine & Co., New York City, Varnishes; Warner, Wm. R., Philadelphia, Pa., Sugar-coated pills; Young, Ladd & Coffin, New York City, Perfumes.

Second Degree of Merit.—Burnett, Joseph & Co., Boston, Mass., Flavoring essences; Burnett, Joseph & Co., Boston, Mass., Eau de Cologne; Eastman & Bro., Philadelphia, Pa., Soaps and perfumes; Fairbanks & Co., New York City, Hand and counter scales; Smith, H. F., ——— Soda-water apparatus; Young, Ladd & Coffin, New York City, Eau de Cologne.

Third Degree of Merit.—Burnett, Joseph & Co., Boston, Mass., Perfumes and essences; Gill, Thomas, New York City, Borax soap.

Other Awards.—Sanders Enno, Ph.D., St. Louis, Mo., Veterinary surgeon's medicine chests.

The Sale of Morphine in Florida.—*The Oil and Drug News* says the Legislature of Florida has passed an act requiring all morphia to be wrapped in crimson paper, whether sold in vials or in grain doses, under a penalty of twenty-five dollars for each omission. The motive seems to have been to prevent mistakes in country stores where quinia is sold in one-eighth of an ounce vials, and both morphia and quinia heretofore were wrapped in blue paper.

Wonderful Discovery!—A correspondent of the *Lancet and Clinic* (Cincinnati) writes to that journal as follows: While travelling in the East Indies (as a missionary, of course), I obtained from the natives some herbs which, when carefully prepared, entirely renovate the soul, removing from it every particle of corruption. I noticed many souls that were in the last stages of degradation, and given up by the leading missionaries as beyond redemption that, on taking this wonderful preparation, were so completely restored in a comparatively short period that they were enabled to sing, with voices as sweet as that of an editor of a religious newspaper, "Hallelujah Praise," etc.; the malady disappearing as it were by magic—a disease the pathology of which does not seem to have been well understood by the clergy, for as yet they have not been able to reduce their profession to a "science," except by a few rays with which Darwin, Huxley & Co. have been endeavoring to illuminate the many dark and mysterious paths along which so many of them have been contending which was the most direct route.

This preparation has received the "highest indorsement" of all the "leading theological seminaries," both of this country and Europe, and as soon as I can have the woodcuts prepared of serpents, dragons, etc., I will have it advertised in all the religious newspapers throughout the country with the editor's indorsement (providing we have the money), and it will be sold by all the leading "Bible Depositories" at one dollar per bottle or six bottles for five dollars. I. W. CHISHOLM, M.D.

P. S.—We will append but one certificate of the *many* which we are constantly receiving:

KAPSAFULLEGERUM, ZA.

I hereby certify that I have been afflicted from my birth with "original sin" (being hereditary in our family our pastor said), and having been attended by all the leading divines in the country and joined church (in fact belonged to three churches at the same time), and after spending *hundreds of dollars* for minister's salaries and religious newspapers, I became no better, but gradually grew worse, and was given up as lost, when a friend advised me to try your "Wonderful Discovery, the Soul Purifier," and after taking but a few doses I experienced a great change, and after using but three bottles I found myself completely restored.

With grateful heart, I subscribe myself,

X. Z. TINHOOVER, M.D.

Nitrates in Nevada.—An extremely important addition has lately been made to the list of valuable minerals found in Nevada. It consists in the discovery of large beds of nitrates near Brown's Station, Humboldt Desert. The State Mineralogist of California, Mr. H. G. Hanks, finds the mineral to be a very rich nitrate of soda, and regards the discovery as one of the most important ever made on the Pacific Coast. Mr. Hanks expresses the opinion that other similar deposits will be found, as large regions of Nevada and California are of a formation suitable for its existence. Many years ago he predicted the discovery of nitrates in the southern part of California, but as yet none has been found. The Nevada discovery will doubtless turn the attention of prospectors to this valuable mineral.

The Cinchona Market.—Cinchona is accumulating to a very large extent, the stock in the port of London amounting to over 37,000 packages. The point seems to have been reached when the supply can more than meet the demand, unless under very exceptional circumstances, and it is likely that a period of low price for quinine will now set in. At present, as will be seen, the prices for English and French manufacture are abnormally high in comparison with those for German make, in consequence of special contracts. It is quite certain that, for some time to come, the arrivals of bark will continue to increase, and it is probable that the proportion of the imports rich enough in alkaloid to be worth working will also become larger. That a further reduction will result in the price of quinine, if no exceptional demand should occur, is almost certain, and it may be considerable.—*Chem. and Drugg.*

Artificial Indigo.—Native indigo was decomposed by Fritsche so long ago as 1840, and aniline was then obtained from it. Subsequently a crystalline substance called isatin was procured from indigo; and later, indigo was made from isatin. The next step was the production of isatin from an independent source, and this has been done in three different ways, two of which are too costly for commercial use. Baeyer has alone carried it out in a practicable manner. He commenced with cinnamic acid obtained from oil of bitter almonds, but this was much too costly. It has been found by Dr. Caro and Mr. Perkins that cinnamic acid can be obtained from toluene,

which is a product of coal tar. From cinnamic acid, however obtained, a complex acid can be produced which is now for brevity called propiolic acid. This acid gives the colorless isatin, from which, by the use of suitable reagents, the indigo blue dyestuff is obtained. The commercial aspect of the production of indigo in this way is affected by the cost of preparing the dry propiolic acid. At the present time the material is placed in the hands of Manchester calico printers at the rate of 6*s.* per pound for a paste containing 25 per cent of dry acid. The acid itself is worth 50*s.* per kilo., of which only 68.58 per cent yields actual dye, so that the price of artificial indigo, being not less than 73*s.* per kilo., is more than twice the value of the pure natural color. Hence competition with the Oriental product is not possible until the makers can reduce the price of dry propiolic acid to 20*s.* per kilo, and also obtain the theoretical yield of dye therefrom. Still the fact remains that the artificial process is a chemical reality, only hindered by economical considerations, which may at any time be removed, from taking a good commercial position.—*Scient. Amer.*

The Price of Glycerin.—Notwithstanding the low price which now prevails for almost every description of raw produce and manufactured goods, there are a few articles which form notable exceptions. Perhaps one of the most remarkable of these is refined glycerin, which, within the last two years, has advanced from about $1.50 to $6.32 per ton avoirdupois for 30° B. This enormous advance is due partly to increased consumption, diminished production, and the influence of speculation working on a market devoid of stocks. In view of the present position of the article and the prospect of a continuance of high prices for a considerable time to come, the attention of soapmakers is now being turned to the utilization of their waste "leys," and various new processes for recovering the glycerin contained in these liquors have lately been tried with more or less successful results. Apart from minor impurities, waste soap "leys" are generally found to contain glycerin, carbonate of soda or caustic soda, chloride of sodium, gelatin, and albumen. One of the processes for recovering the glycerin which promises to be the most economical and the most successful begins with concentrating the liquor until the salts contained therein begin to crystallize. The liquid is then cooled and filtered to rid it of gelatin and albumen. It is afterwards made to absorb carbonic acid, which precipitates bicarbonate of soda, and which is separated from the liquor in the usual way. After undergoing this process, the liquor is then made to absorb gaseous hydrochloric acid until what remains of carbonate of soda has been converted into chloride, and further, until all, or almost all, the chloride of sodium has been precipitated and separated from the liquor in the usual manner. Arrived at this stage, the liquor contains water, glycerin, and hydrochloric acid. The acid is then evaporated entirely and absorbed in water for using afresh. The dilute glycerin remaining can be purified by filtering it through animal charcoal or by concentrating and distilling it in the usual way.—*Glasgow Herald.*

Preparation of Glycerin from Spent Lyes.—According to the new procedure of H. Fleming, of Kalk (German patent, No. 12,209), the lyes are submitted to osmosis (dialyzing), the same apparatus being used which serves in the (beet-root) sugar manufacture for dialyzing treacle. A cell is divided into two compartments by means of a dialyzing membrane of parchment paper. Through one of these compartments flows clear water, and through the other flows the lye previously concentrated. The salts of the lye pass through the membrane into the water, while water passes in the opposite direction and dilutes the glycerin. If the solution of glycerin still contains too much saline matter after being once dialyzed, it is concentrated and dialyzed again. These operations are to be repeated till a satisfactory grade of purity has been reached, and the solution is concentrated and finally purified by distillation or concentration. If the lye is strongly alkaline, it is neutralized with sulphuric acid before the operation.

Various attempts had previously been made to extract glycerin from lye, but without any real success. The patented process of Thomas, Fuller & King, of Bristol, approaches, in one respect, nearer, but it fails to remove the considerable proportion of chlorides, especially common salt, present in the concentrated lyes. This removal is essential, because, in the subsequent treatment with super-heated steam, a considerable quantity of chlorides are carried over along with the glycerin, and cannot be removed by refining with bone black. As crude glycerin has lately risen to three times its former price, there is scope for invention. The cost of Fleming's process is trifling.—*Oil and Drug News.*

Bleaching and Cleaning Sponges.—M. Blondeau recommends the following process as being more rapid, and also less calculated to injure the cell-texture of the sponge itself, than any of the ordinary cleansing methods, while the results in every respect equal, if they do not surpass, those obtained in the usual way, or with the use of sulphurous acid.

After the orthodox "dry beating," the sponges should be well "roused" in warm water, and afterwards macerated in a dilute solution of hydrochloric acid containing 150 cubic centimeters of the commercial acid per liter, or about 3¼ fluid ounces to the pint. The sponges should be left in this liquid for half an hour at least after the cessation of all effervescence, so as to insure that every trace of carbonate of calcium has been dissolved, leaving the sponge vesicles free and unchoked.

If only required for rough purposes, a wash or two first in alkaline, and then in fresh soft water only will be needed; but if, as is most probable, it is desired to bleach them, the sponges must next be immersed in a dilute hydrochloric acid of 5 per cent strength, to which 6 per cent of hyposulphite of sodium has been gradually added. From twenty-four to thirty-six hours' soaking in this bath will effectually conclude the bleaching, and in most cases the sponges will present a delicate cream color, and a brief, but thorough, washing until free from every trace of acid or sulphurous smell, followed by drying at a *low temperature*, finishes the operation.

For those coarse and darkly-tinted sponges which frequently retain their color very obstinately, become in fact tender or rotten by long exposure to the acid, "bleach" long before they succumb to the whitening influence of the latter, an old correspondent recommends the alternate use of a moderately strong solution of permanganate of potassium (Condy's fluid) and of a 10 to 15 per cent solution of hydrochloric acid. The coloring matter is quickly oxidized and destroyed by this means, and a very short immersion in the "hypo" subsequently will suffice to bleach the sponges quite satisfactorily.

The Growth of Crocus Sativus, the Source of "Hay Saffron" in Kashmir.—(By Dr. Downes, Med. Missionary.) According to the late Dr. Elmslie, the native names are Kóng pósh (Crocus sativus), n. m., Saffron-flower, and Kóngs, n. m., saffron (Crocus sativus). Cake saffron is largely an adulteration of the stigmata of wall-flower and other plants. The Crocus sativus is the only plant grown in Kashmir the stigmata of which compose hay saffron. The famous saffron fields are situated in the vicinity of Pampur, on a plane fully fifty feet above the valley. The bulbs grow on soil said to have been specially imported for the purpose. In dry seasons the produce averages nearly a ton, though the crop was in 1871 only half that quantity. Some 1,500 pounds of saffron are exported yearly from Kashmir to Laddahk. From 9*d.* to 1*s.* sterling is given for 180 grains. The bulbs are planted out in June, and the stigmata are collected in October. It is principally used as a condiment, its power on the system, whether in health or disease, being trivial. The mark on the forehead of a Hindu Pundit is partially derived from it. The Mussulmans of the valley are generally unable to buy it. Pareira makes one grain of

good saffron to contain the stigmata and styles of nine flowers, so that the formation of an ounce would require 4,320 flowers. Bulbs received by Dr. Royle in 1826, from Kashmir, when in charge of the Saharaunpore Botanical Gardens, which flowered, and were afterwards figured, turned out to be varieties of Crocus sativus. This author has little doubt of the Asiatic derivation of this species.

The four stations for saffron cultivation, called "Ware-was," are flat, treeless table-lands, on the borders of the hills, 50 to 150 feet higher than than the Kashmir Valley, which is 5,200 feet above the sea-level. They are little, if at all irrigated. The soil is a stiff clay. Dr. Downes has been informed that saffron has been successfully cultivated in the gardens of the city of Kashmir; indeed, he believes that the oppression and greed of government officials is the sole cause preventing its general growth. He does not think a special soil is needed for the cultivation of Crocus sativus. In a hopeful experiment of this kind at Alwar, near Delhi, Mr. Landseer started bulb-growing on earth brought in barrels from Kashmir. But in the second year, the five beds of bulbs had increased to nine, and, as there was no further import of Kashmir earth, native soil had to be partly used, and with success. In Kashmir, the Crocus sativus is cultivated on raised parterres, well drained and carefully weeded, though Dr. Downes believes not irrigated. As the half of the price of the produce, which is the due of the cultivator, very seldom comes his way, owing to the plundering of intermediate government officials, the plant is left very much to its own care. During the last two famine years no saffron has been gathered, though this year a small crop is expected. According to one native tradition, the Crocus sativus miraculously appeared in Pampur after the prayer of a holy man, some three hundred years ago, while others assert its introduction from the direction of Kabul by a ruler named Bar Shâh.—*Gardener's Chron.* and *Pharm. Journ.*

Mulungu Bark.—Some experiments with the bark of the *Erythrina corallodendron*, a large leguminous tree growing in the north of Brazil, where it bears the name of "mulungu," have been reported by Mr. Bochefontaine (*Comptes Rendus*, xcii., 733). In its native country the bark is popularly used as a sedative and hypnotic, under the form of a decoction, tincture, and extract.

Mr. Bochefontaine found that a decoction and a filtered aqueous solution of an extract gave precipitates characteristic of an alkaloid, which he has provisionally named "erythrine," but does not appear to have further examined chemically. Physiological experiments made by subcutaneous injections of the aqueous liquid showed that this acted upon the central nervous system by diminishing or abolishing its normal function. Mr. Bochefontaine concludes, therefore, that the bark possesses the sedative properties attributed to it in Brazil, and that these are due to the alkaloid it contains.—*Comptes Rend.* and *Pharm. Journ.*, April 30th.

Oil of Peppermint.—The peppermint crop of the United States has, for the last few years, reached the amount of 70,000 pounds per year, of which about 30,000 pounds were annually exported. Two-thirds of the peppermint oil of this country is produced in New York State, and about one-third in Michigan. The best oil comes from Wayne County, New York. The plant is a perennial one, and is planted in the spring. The next year it is ready for cutting, and generally may be cut for three years.

The best yield is given in the first and second year of cutting; in the third year the plant becomes bitter. After the plant becomes four years old it is not cut, and the field is plowed over and a new crop planted. The usual method of planting is in rows, and in August the plant is ready for cutting, which is done by mowing down with a scythe. The leaves are then placed in a still and the oil extracted. There was a report that considerable of the roots were damaged by the cold weather of last winter, but it is claimed that this will not affect the price, as there is an increased acreage, and the damage is not as great as has been claimed. The plant is a very hardy one, and will yield from ten to thirty pounds to the acre. The cultivation of the peppermint is now being introduced into the Southern States, where it will furnish a profitable crop in the middle of the year, but as yet none of the Southern oil has reached this market.—*Boston Bulletin.*

New Zealand Potash.—Sulphate of potash exists in large quantities along the coast of New Zealand. "Some short time, since," says the *Melbourne Leader*, "Mr. R. W. E. MacIvor, analytical chemist, went to White Island to investigate the deposits which abound there. Mr. Nicholas, agent of the Melbourne capitalists interested, has received from him a telegram giving a very favorable report." For some years works have been maintained at Taurannga, on the main land, near by White Island.

To Hear the Grass Grow.—At a recent meeting of the Silesian botanists, an apparatus made by Thomas and Lügel, was exhibited which permits to measure the rapidity of the growth of a plant. The latter is connected with an index which advances visibly and constantly, and exhibits the growth in a scale fifty times magnified. If this index be connected with an electric hammer, the current of which is interrupted as the index passes over the divisions of the circle, the growth of the plant will not only be visible, but also audible to the ear; hence the phrase "to hear the grass grow" will no longer be without a literal meaning.—*Das Ausland*, No. 11.

An Epitaph "on a Quack."—

"I was a quack, and there are men who say
That in my time I physick'd lives away;
And that at length I by myself was slain
With my own drugs, ta'en to relieve my pain.
The truth is, being troubled with a cough,
I, like a fool, consulted Dr. Gough,
Who physick'd me to death at his own will,
Because he's licensed by the State to kill:
Had I but wisely taken my own physic,
I never should have died of cold and 'tisick.
So all be warned, and when you catch a cold,
Go to my son, by whom my medicine 's sold."
—*Medical Times and Gazette.*

PHARMACEUTICAL CALENDAR.—Sept.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
Thurs. 1st.	Massach. Coll. Pharm.—Trust. Meet.
	Louisville Coll. Pharm.—Pharm. Meet.
	N. Y. Coll. Pharm.—Trust. Meet.
Fri. 2d.	Cleveland Parm. Assoc.—Bimonthly Meet.
Mon. 5th.	Erie Co. Pharm. Ass.—Meet. at Buffalo.
Tues. 6th.	Phila. Coll. Pharm.—Trust. Meet.
Thurs. 8th.	Newark Pharm. Assoc.—Meet.
	Louisville Coll. Pharm.—Directors' Meet.
	Phila. Coll. Pharm.—Alumni Pharm. Meet.
	Maryland Coll. Pharm.—Meet.
	N. Y. Germ. Apoth. Soc.—Meet.
Tues. 13th.	St. Louis Coll. Pharm.—Pharm. Meet.
	Kings Co. Pharm. Soc.—Meet. at Brooklyn.
	Pittsburgh Coll. Ph.—Trust. Meet.
	Chicago Coll. Pharm.—Trust. Meet.
	National Coll. Ph.—Trust. Meet.
Wed. 14th.	Cincinnati Coll. Ph.—Mo' and Ph. Meet.
Tues. 20th.	St. Louis Coll. Ph.—Trust. and Alumni M.
	Phila. Coll. Ph.—Pharm. Meet.
Mon. 26th.	Phila. Coll. Ph.—Semi-annual Meet.